11-15-68

ERIC REPORT RESUME

ERIC ACC. NO.			
ED 026 547			
CH ACC. NO.	**P.A.**	**PUBL. DATE**	**ISSUE**
AA 000 338	24	67	RIEJUL69

IS DOCUMENT COPYRIGHTED? YES ☐ NO ☐
ERIC REPRODUCTION RELEASE? YES ☐ NO ☐
LEVEL OF AVAILABILITY I☐ II☐ III☐

AUTHOR
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TITLE
Reading Success and Personality Value-Systems Syndrome--A Thirty-Year Then and Now Study at the Junior High School Level. Final Report.

SOURCE CODE	INSTITUTION (SOURCE)
RMQ66000	Office of Education (DHEW), Washington, D.C.
SP. AG. CODE	**SPONSORING AGENCY**

EDRS PRICE	CONTRACT NO.	GRANT NO.
0.50;6.25		

REPORT NO.	BUREAU NO.
CRP-S-248	BR-5-8027

AVAILABILITY

JOURNAL CITATION

DESCRIPTIVE NOTE
121p.

DESCRIPTORS
*Personaltiy Assessment; *Personality Development; *Personality Studies; *Reading Achievement; *Reading Research

IDENTIFIERS

ABSTRACT

Erikson's theory on the development of a healthy personality is integrated with Holmes' Theory of Reading in order to derive a testable hypothesis regarding the contribution of specified personality characteristics to reading success and to validate the findings. The study was conducted in the following three phases--the construction of new scales composed of personality items which significantly differentiated good and poor readers at the ninth-grade level in 1936, a longitudinal application of these scales to the same sample of students when they were in the seventh, eighth, and ninth grades in 1933 and 1934, and a cross-sectional replication after 30 years. Five samples were used. Two (n's-160 and 130) were drawn from the longitudinal study (1933-35) at the Institute of Human Development, University of California. Three comparable samples were selected from grades seven, eight, and nine in 1966. Specific personality characteristics hypothesized from an integrated Erikson-Holmes theory were consistently related to reading in the seventh, eighth, and ninth grades, and for two similar groups 30 years later. The report includes tables, figures, the self-interest inventory, and a bibliography. (RH)

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Reading Success and a Personality Value-Systems Syndrome: A Thirty-Year THEN and NOW Study at the Junior High School Level

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and

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1967

U. S. Department of Health, Education, and Welfare
Office of Education

Contract No. S-248; Bureau of Research: No. 5-8027-2-12-1

AA000338

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by

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University of Rochester University of California

Final Report

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DEPARTMENT OF
HEALTH, EDUCATION AND WELFARE
JUL 6 1967
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The research reported herein was supported as a small contract project by the Office of Education, U. S. Department of Health, Education, and Welfare.

John Gardner,
Secretary

Harold Howe, II
Commissioner

1967

ABSTRACT

Reading Success and A Personality Value-Systems Syndrome: A Thirty-Year THEN and NOW Study at the Junior High School Level

Irene J. Athey and Jack A. Holmes

Theoretical and Empirical Background

Analytical research into the relationship of personality factors to reading has had four major defects: (1) It has lacked a firm theoretical base with respect to both reading and personality, i.e., generally speaking, the hypotheses tested have not been derived from a theory of reading nor from a theory of personality, much less from an integration of the two types of theory; (2) It has resulted in inconclusive findings because of the unsuitability of the personality scales used; (3) It has been insensitive to the possibly changing relationship of specific value-saturated personality scales and reading achievement with increasing academic experience and age; and finally, (4) It has generally consisted of a "one-shot" study without proper cross-validation or replication.

Purpose

The major purposes of the study were: (1) To integrate Erikson's theory on the development of a healthy personality with Holmes' theory of reading, and to derive from the integrated theory testable hypotheses regarding the contribution of specified personality characteristics to reading success, and (2) To validate the findings, first by a double cross-validation; second, by a longitudinal study on the same sample; and third, by a longitudinal replication using cross-sectional samples 30 years later.

Hypotheses

The hypotheses derived from the integrated Erikson-Holmes theory stated: (1) That successful readers would exhibit those qualities which

characterize the "healthy personality," (viz., positive self-concept, autonomy, basic trust, mastery of the environment, and freedom from neurotic anxiety), and (2) that each of these qualities would, as "mobilizers," make a significant contribution to reading success.

Tests

The *Stanford Achievement Test*, Paragraph Meaning, Form V (1932) was used as the reading criterion.

A double cross-validation following a two-way item analyses of the *University of California Inventory* selected those items which exhibited discriminating power with respect to reading. A third and consolidating item analysis determined the content of the new inventory.

Samples and Procedures

In all, five samples were used in the present study. Two samples were drawn from the longitudinal study (1933-1935) at the Institute of Human Development, University of California, Berkeley, and one of these (N = 160) was studied longitudinally in Grades 7, 8, and 9 (1933-1935); the other sample (N = 130) was used for cross-validation purposes. In addition, three comparable samples were selected from Grades 7, 8, and 9 in 1966 (N's = 143, 158, 112).

The study comprised three major phases: I. Construction of reading personality scales; II. Longitudinal validation; III. Cross-sectional replication after 30 years.

First phase: *Construction of reading-personality scales* (the THEN phase)

1. *Item analysis*. The upper and lower 27 per cent of Grade 9 (1935) students on the reading distribution were used to make an item analysis of the initial 328 items on the personality protocols of the *University of California Inventory*.

2. Initial cross-validation. The significant items were cross-validated on a totally new Grade 9 (1935) sample.
3. Reciprocal cross-validation. Procedures 1 and 2 were repeated, using the upper and lower 27 per cent of the second sample for the item analysis; and the original sample was now used for the second cross-validation.
4. Item analysis of pooled samples. A third consolidating item analysis was performed on the 27 per cent of the best and worst readers in the pooled Grade 9 samples (N = 290). An item was retained if it was (a) significant at the 5 per cent level, and (b) discriminated in the same direction in this and the two former analyses. Of the original 328 items, 70 survived the triple analyses.
5. Pearson correlation. All subjects in the two samples were rescored on the 70 discriminating items, and the resulting scores were correlated with reading. These correlations were all significant and also stable for the cross-validating samples.
6. Factor analysis. The items were intercorrelated and submitted to a principal components factor analysis to determine whether they would cluster into scales descriptive of the personality characteristics hypothesized from theory. Seven factors were isolated and subsequently purified to form four scales which were interpreted as: I. Social Independence; II. Self-Concept; III. School Dislikes; and IV. Self-Decision.

Second phase: Longitudinal validation (the THEN phase)

7. Correlation. The personality protocols at the Grade 7 and 8 levels for the original Grade 9 sample were rescored for the

purified scales. Correlations with reading were computed and compared for the three years.

Third phase: Cross-sectional Replication (the NOW phase)

8. Correlation. The same personality scales and the same reading criterion test used in the then phase were administered to new samples in Grades 7, 8, and 9, 1966. The 30 (3 grades x 4 scales + 3 totals for the then and now samples) means and correlations were examined within and between the longitudinal and the cross-sectional samples for the two groups.

9. Multiple correlation. For each of the six years (Grades 7, 8, and 9 in 1933-1935 and in 1966), the best predictor scales were included in multiple correlations using reading as the criterion variable.

10. Socioeconomic status. Finally, a comparison of the correlations of S.E.S. versus the new personality scale with reading was made.

Results and Conclusions

1. An integrated personality and reading theory can provide a strong theoretical framework within which research in this area may be pursued in meaningful directions.

2. Specific personality characteristics, hypothesized from an integrated Erikson-Holmes theory, have been shown to be consistently related to reading in the 7th, 8th, and 9th Grades and for two similar age groups separated by some 30 years.

3. Social independence, a positive self-concept, and the desire and ability to make one's own decisions (with freedom from anxiety for making those decisions) constitute a syndrome that is clearly related to reading at the junior high school level.

4. *On the average, the best estimate is that these value-saturated personality scales account for 13 per cent of the variance of reading success at the junior high school level.*

5. The combined techniques of item analysis, two-way cross-validation, and factor analysis provide an effective method for constructing new value-saturated personality scales that can be shown to have a specific and demonstrated relationship to reading achievement.

6. The newly constructed scales should be extended in line with the theoretical aspects hypothesized from personality theory. Since Erikson's theory has provided valuable insights into the possible mutual development in the *individual* of reading and certain aspects of personality in accordance with the mobilizer hypothesis of Holmes, further research should examine other promising concepts such as basic trust and initiative. The present findings suggest the need for constructing valid and reliable scales to measure these concepts in order to extend the application of the integrated theory, especially to minority groups and earlier age levels.

7. Research in the area of personality as it relates to reading is difficult and arduous, but if pursued relentlessly, it can produce reliable and valid results of psychological and educational significance.

ACKNOWLEDGMENTS

This study, supported by the U. S. Office of Education (Small Contract Project No. S-248, Bureau of Research No. 5-8027-2-12-1), was originally initiated as an integral part of a larger reading project conducted by Professor Jack A. Holmes under the auspices of the Institute of Human Development, University of California, Berkeley, and funded by a generous grant from the Carnegie Corporation of New York.

In another sense this study is a direct outgrowth of Dr. Irene Athey's Ph.D. dissertation. However, both writers draw attention to the fact that the then phase of the study rests on the prodigious and careful work of Professor Harold E. Jones and his wife, Professor Mary C. Jones, who supervised in great measure the collection of data for the Adolescent Growth Study in the 1930's. The extent, quality, and importance of their pioneering work in the field of longitudinal studies can hardly be overemphasized. In this regard, we also extend our thanks to Dr. M. Brewster Smith, present director of the Institute, as well as its former director, Dr. John A. Clausen, for their continuing cooperation in the pattern previously established by the late Harold E. Jones, Director Emeritus.

We are grateful to Dr. Kenneth M. Forry, Superintendent of the Albany School System, Albany, California, for permission to test in his district, to William Woolworth, Curriculum Supervisor, and Roger Ruth, School Psychologist, for making the detailed arrangements to administer the tests and to school principals Mrs. Elizabeth Lott, Mr. Milton Gordon, and Mr. Harry J. Price, and their respective teachers for their cooperation throughout the testing schedule. To Dorothy Thode, Dorothy Bennett, Mary Bennett Rein, Jo Ann Weinberger, and Ronald Shinn go similar thanks for the careful way in which they administered these tests.

No study such as this can be brought to a conclusion without the dedicated help of many people, including the children who take the tests. To Dan, Keith, and Jack C. Holmes and Duane Rubadeau go our sincere thanks for the concentrated hours they spent in scoring, rescoring, and tallying the items after each rescaling or factoring of the tests.

Special tribute is herein paid to Price Stiffler, John Reed, Kathy Cox, Mien (Jennie) Pao, Robert Miller, and William Raley for their respective contributions either as programmers or computer operators. Valuable technical counsel was proffered by Professors Henry F. Kaiser and Alan Wilson in the area of factor analysis. The statistical procedures were greatly facilitated by the services of the University of California Computer Center, Berkeley, and by the Survey Research Center, Berkeley.

To Ethel Merell and Joy Hussey go our deepest appreciation for dedicated devotion to their respective tasks of keeping our budget balanced, typing the manuscript, and coordinating the details for the final report.

Finally, the writers recall with pleasure the many fascinating discussions with Judith L. Craise, Kenneth R. Athey, Professor Mary C. Jones, and the late Professor David H. Russell on the problems surrounding this study. Their helpful advice and especially their encouragement, which was always forthcoming in no small measure, contributed to the successful completion of this study.

Jack A. Holmes and Irene J. Athey
March 1, 1967

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CHAPTER I

THEORETICAL BACKGROUND

Although a continuous flow of articles testifies to the reading specialists' interest in the possibility of a relationship between reading ability and personality, there is a conspicuous dearth of attempts to fit reading into a more comprehensive personality theory. Personality theorists, on the one hand, have been more interested in issues only indirectly related to school learning, while such reading specialists as were interested at all in personality aspects, confined themselves to direct relationships with limited segments of behavior such as introversion or anxiety.

This study will attempt to integrate a theory of reading proposed by Holmes (1954, 1961) with a theory of personality propounded by Erikson (1950, 1959), and to derive from the integrated theory several hypotheses regarding the relationship between personality and reading. Since learning to read is an activity participated in by every "normal" member of this culture, Erikson's theory has been chosen because it concentrates upon the development and functioning of the normal or healthy personality, rather than upon behavioral aberrations.

Erikson (1959) conceives the whole psychological span of human life as a series of eight steps or stages, each ushered in by a basic conflict, the successful resolution of which contributes a new dimension to the growing personality. Each dimension is "*systematically related to all others, and they all depend on the proper development, in the proper sequence, of each item*" (p. 53). In other words, the abortive solution of a conflict will result not only in the new dimension itself being stunted or warped, but will produce unfavorable conditions for all subsequent growth.

The first developmental task which will lay the foundation for the emerging personality is "the firm establishment of enduring patterns for the balance of basic trust over basic mistrust" (p. 63). Basic trust depends upon the quality of the maternal relationship and upon the parents conveying to the child "an almost somatic conviction that there is a meaning to what they are doing" (1950, p. 222). A drastic loss of mother love at the time when basic trust is being established may lead to acute infantile depression or to a mild depressive coloring for the whole remainder of life.

Erikson has provided an epigenetic diagram which not only demonstrates the successive stages in the growth of the healthy personality, but also indicates that each component continues to develop both before and after its emergence as the pivotal factor in a basic conflict at a certain age. Thus the second stage of development, the struggle for "autonomy vs. shame and doubt," occurs during the second and third years of life, but the individual's sense of autonomy exists in a rudimentary form before this crisis, and will continue to develop far into maturity.

What Erikson is saying is that, from the moment of his birth, the baby is learning, is acquiring knowledge about continuities and discontinuities in the social as well as the physical world, and about their relationship to his own sensations. Somehow this knowledge is basic and cumulative, since it provides the well-springs for future action.

Holmes (1957, 1959, 1960) has presented a model intended to portray the workings of the human mind in action. All stimuli impinging on the

← Future elaborations of conflict solutions →

I INFANCY	Trust vs. Mistrust							
II EARLY CHILDHOOD		Autonomy vs. Shame, Doubt						
III PLAY AGE			Initiative vs. Guilt					
IV SCHOOL AGE				Industry vs. Inferiority				
V ADOLESCENCE					Identity vs. Identity Diffusion			
VI YOUNG ADULT						Intimacy vs. Isolation		
VII ADULTHOOD							Generativity vs. Self- Absorption	
VIII MATURE AGE								Integrity vs. Disgust, Despair

← Precursors of conflict solutions →

Figure 1. Erikson's epigenetic diagram showing growth of personality.

sense organs of a human being represent input of information. Such information is processed and stored in "substrata factors" of the mind. (He also hypothesizes a generated input of information about new relationships derived from the cognitive activity of the brain itself.) Neurologically, substrata factors may be thought of as sub-systems of brain cell-assemblies, containing various kinds of information, such as shapes, sounds, and meanings, memories for events both directly and vicariously experienced. Such neurological sub-systems of brain cell-assemblies gain an interfacilitation in Hebb's (1949) sense by firing in phase. Hence, diverse appropriate subsets of information learned under different circumstances at different times and hence stored in different parts of the brain, may be brought simultaneously into awareness when triggered by appropriate stimuli (1960, p. 2).

Whenever there is input of information, there is accompanying affect. In fact, knowledge of the affective component of the situation is just part of the knowledge about that situation. In the baby, it is the predominant aspect. His first knowledge of the world is in terms of pleasantness or unpleasantness, of sympathetic understanding or hostility to his needs. This knowledge is preverbal and is laid down deep in the subconscious layers of the mind. Neurologically, it is probably deposited layer by layer in the hypothalamus, hippocampus, and hippocampus gyrus areas of the brain, but it is always associated with the intellectual content stored in the substrata factors. At this stage the child "thinks" with his body. In a similar vein, Erikson speaks of "somatic convictions." The knowledge so gained provides the central core of what Rokeach (1960) has called "primitive belief systems." These beliefs are seldom, if ever, verbalized. Undoubtedly they are "felt" rather than believed,[1] and this explains the deep conviction they carry. "What seems important to know about these primitive beliefs is their specific content about the physical and social world, the latter including the person's self concept and his conception of others" (Rokeach, 1960, p. 40). From the first days of extrauterine life, the infant begins to amass knowledge not only of the external world, but of his own worth or lack of it, of the value placed on him by the outside world, of his own place in the scheme of things. This knowledge is accompanied by feelings of deep satisfaction or of an all-pervading anxiety. The primitive belief system revolving around the as yet unverbalized feelings of self value or worthlessness, of love or rejection, is the component Erikson calls "basic trust or mistrust." With the advent of language skills, many of these beliefs will be verbalized, reasoned about, probably enlarged or modified. But many will remain as unconscious driving forces determining behavior.

---

[1] Notice how often the two words are used interchangeably in common parlance.

In Holmes' theory, these primitive belief systems about oneself and one's worth about the nature of the physical and social world, are called "mobilizers." Though primarily below the level of conscious awareness, mobilizers function, as the focal points of value systems, to determine the approach or attitude to a problem, and to select from one's repertoire stored in the substrata factors, the information relevant to its solution. Mobilizers are defined as

> . . . deep-seated value systems, the fundamental ideas that the individual holds of himself, and his developing relationship to his environment. As conative tendencies, with or without conscious awareness, mobilizers function to select from one's repertoire of subabilities those which will maximize one's chances of solving a specific problem in particular, and forwarding the realization of self-fulfillment in general. Mobilizers must play their major roles as the fundamental driving value systems from whence spring the many and specific attitudes and anxieties a person holds

> toward the purpose and worth a) of life and death, b) of the social and physical nature of the universe, and c) of the self's expanding personality. Consequent patterns of behavior, of course, are directed by such value-attitudes. Neurologically, mobilizers may be thought of as controlling influences, electrochemical biases in the brain's scanning search mechanisms which govern those cell-assemblies which shall be selected and momentarily tied into a particular neural pattern of communication (1960, p. 3).

The concept of mobilizer is somewhat different from that of Murray's (1938) need for achievement, though the two may be related. Need for achievement is a global concept referring to the disposition or "tendency to work with energy and persistence at something deemed important."[2] Mobilizers derive from the specific values and attitudes which determine what that "something" will be. In other words, they determine the channels into which the need for achievement will be directed.

Collectively, mobilizers approximate quite closely in their functioning to the role Erikson accords to the ego:

> . . . the ego keeps tuned to the reality of the historical day, testing perceptions, selecting memories, governing action, and otherwise integrating the individual's capacities of orientation and planning (1950, p. 168).

Through the media of rewards and punishments, the child comes to learn and to value those kinds of behavior and activity which will "maximize his chances of solving a specific problem in particular and forwarding the realization of self-fulfillment in general."

> When self-fulfilling behavior is reinforced, the child is able to mobilize more and more of his energies for the purposive pursuit of his task, but when such behavior is in conflict with authoritative and parental notions of what the child ought to be doing, then the converse would tend to be true.

---

[2] Definition of "achievement drive" in Horace B. English and Ava C. English, "A Dictionary of Psychological and Psychoanalytical Terms." New York: Longmans, Green and Co., 1958, p. 6.

Thus mobilizers develop and expand through the "gradual process of internalizing into deep-seated value systems what was initially, in the child, merely a superficial role-mask or persona guide for behavior" (Holmes, 1961, pp. 120-121).

In discussing the convergence of psychoanalytic and sociological theory, Parsons (1960) points out that internalization of cultural standards is not a special kind of learning reserved for the superego, as Freud implied. In fact,

> . . . it seems to be correct to say that Freud introduced an unreal separation between the superego and the ego . . . . The inescapable conclusion is that not only moral standards, but all the components of the common culture are internalized as part of the personality structure . . . . Moral standards constitute, as the focus of the evaluative aspect of the common culture, the core of the stabilizing mechanisms of the system of social interaction. These mechanisms function, moreover, to stabilize not only attitudes--that is, the emotional meanings of persons to each other--but also categorizations--the cognitive definitions of what persons are in a socially significant sense . . . . [Hence], what persons are can only be understood in terms of a set of beliefs and sentiments which define what they ought to be (pp. 640-641).

It is in this sense of a culturally defined aspect of the socialization process--a part of what a person "ought to be"--that learning to read is conceptualized as a developmental task in the present study. A dominant value orientation of this culture is toward "doing" whatever is necessary to "make something of oneself." Florence Kluckhohn (1958) notes that the Doing orientation, the "Mastery-over-Nature position is the first-order one of most Americans . . . . The view in general is that it is man's duty to overcome obstacles; hence the great emphasis upon technology" (p. 307). And hence the great emphasis upon educational skills, for which reading is the prime requisite. Learning to read not only constitutes "doing" at the stage of industry or mastery, but opens the door to many further possibilities of achievement which will be rewarding to the individual and acceptable within the framework of the culture. Haggard (1957) views academic achievement in general as "one of the many expressions of the extent to which children are responsive to socialization pressures." He argues that "if personality structure is largely a function of the socialization process, it follows that academic achievement is also related to personality structure" (p. 391), a contention borne out by his findings.

Within the dominant culture there exist different subcultures having markedly divergent values, especially with respect to the perception of education as valuable in itself, or as a means to further worthwhile pursuits. These diverse orientations are normally associated with socioeconomic status (Hyman, 1953; Rosen, 1956). Barton (1962), for example, found that "the most important single factor in progress in reading in school is socioeconomic class." It is, of course, not socioeconomic status per se which is important, but the values, the "ways of coping with an uncertain and relatively unrewarding society, and ways of making sense of this world" which students from the "culture of the urban poor . . . bring with them into school, and by sheer weight of numbers override the 'official' culture of the school" (Ennis, 1964). The samples used in the present study were predominantly of middle-class background. Nevertheless, it is hypothesized that differential reading ability is an expression of subcultural value systems, and that the values expressed by the good readers will be similar in content to those of the middle-class culture, while the values of the poor readers will be like those of the lower-class culture.

Anxiety is an important concept in any personality theory, and often a central one in psychoanalytic theories. Freud distinguished three types of anxiety: reality anxiety, which is aroused by real dangers in the external world; neurotic anxiety, which arises in response to excessive demands of the id; and moral anxiety, which develops as a result of the prohibitions of the superego. In line with Parsons' argument that the superego is not basically different in origin from the ego, neo-Freudians have tended to abandon the notion of moral anxiety, and to adopt as a central concept basic anxiety, which may become neurotic anxiety in situations with which the individual feels himself unable to cope. Anxiety theorists in general have recognized an optimum level of anxiety (which may vary among individuals and for different tasks) beyond which behavior tends to become impaired or disrupted. People also vary considerably in their ability to tolerate the anxiety aroused by a perceived threat to a valued object, person, or idea. The capacity for anxiety arousal may have a genetic basis, but the ability to tolerate and use one's anxiety for constructive purposes is learned. In Erikson's theory, the focus of this learning occurs at the successive crises of ego development. In terms of anxiety, each stage is a crisis at which the child either learns new ways of handling his anxiety in a realistic and constructive manner, or meets the challenge by falling back on earlier ways which are now inappropriate and lead to neurotic patterns of behavior. The child who fails at the stage of industry vs. inferiority may be expected to exhibit more of these neurotic responses than the child who succeeds.

Bearing in mind the cumulative nature, emotional and intellectual, of belief-value systems, and the effects carried over from the satisfactory or unsatisfactory resolution of successive conflicts, we turn now to a closer consideration of the fourth stage in Erikson's (1959) schema, the stage of "industry vs. inferiority," during which period the child normally learns to read.

> One might say that personality at the first stage crystallizes around the conviction 'I am what I am given,' and the second, 'I am what I will.' The third can be characterized by 'I am what I can imagine I will be,' . . . and the fourth, '*I am what I learn*' [italics added] . . . . He now learns to win recognition by producing things. He develops industry, that is, he adjusts himself to the inorganic laws of the tool world. He can become an eager and absorbed unit of a productive situation . . . . He advances forward to new stages of *real mastery* . . . and enjoys the prestige gained through such mastery (p. 82).

In other words, his self concept is particularly dependent at this stage upon the feeling that he is mastering important skills, and from comparison of his own prowess with that of other children.

The most important task of the teacher at this point is "the development and maintenance in children of a *sense of industry* and of a positive identification with those who *know* things and know how to *do* things" (p. 87). The mastery of skills and the establishment of a good relationship to those who teach the new skills are the basis for the child's sense of identity.

> The sense of ego identity, then, is the accrued confidence that one's ability to maintain inner sameness and continuity (one's ego in the psychological sense) is matched by the sameness and continuity of one's meaning for others. Thus self-esteem, confirmed at the end of each major crisis, grows to be a conviction that one is learning effective steps toward a tangible future, that one is developing a defined personality within a social reality which one understands . . . . The growing child must, at every step, derive a vitalizing sense of reality from the awareness that his individual way of mastering experience is a successful variant of the way other people around him master experience and recognize such mastery (p. 89).

In Holmes' (1961) words, "The child is striving to establish the basic concepts in which he can believe, the purpose and worth of his own most appropriate self-image, and the mode of behavior that will most likely lead to this realization" (p. 121). He points out that, in treating disabled readers who are emotionally disturbed, it is not enough to improve their "adjustment"; such children need to experience the confidence derived from having the tools and skills to solve their problems.

Erikson does not specifically refer to reading as one of the skills to be mastered, nor does he designate learning to read as a major crisis in the child's life. It is the contention of this paper that learning to read should be accorded the status of a major developmental task at the focal point of the "industry vs. inferiority" crisis. As Margaret Mead (1958) points out, "At whatever point the society decides to stress a particular adjustment, it will be at this point that adjustment becomes acute to the individual" (p. 347). There can be no doubt that in western culture learning to read is a major adjustment which the child must make to retain his own and others' respect. It is part of the process of growing up, a *sine qua non* of maturity, a product of socialization no less important than learning to walk or talk. In his discussion of "Reading and the healthy personality," Russell (1952) remarks upon the role of reading as a socializing influence, and points out that reading opens up opportunities for the development of values, and for identification with valued models.

The child may first realize the basic importance of learning to read when his parents begin to show anxiety about his progress. If previous crises have left him with feelings of inadequacy, this anxiety will arouse in him the deepest feelings of worthlessness and inability to meet the challenges of life. As Erikson states:

> The danger at this stage is the development of a sense of inadequacy and inferiority. This may be caused by an insufficient solution of the preceding conflict; he may still want him mummy more than knowledge; he may still rather be the baby at home than the big child in school . . . . But in addition to the feeling of inferiority, the 'feeling that one will never be any good' . . . [is] the danger of the child's identifying too strenuously with a too virtuous teacher, or becoming the teacher's pet, and the danger (probably the most common one) that throughout the long years of going to school he will never acquire the enjoyment of work and the pride of doing at least one kind of thing well (p. 88).

One may infer from all this that poor readers will have a very different personality structure from that of successful readers. Some support for this inference may be drawn from Holmes' (1959) finding that a very specific personality syndrome seemed to favor the development of spelling ability, and that this syndrome differed for men and for women. He found only one personality scale that characterized men who excelled in spelling, namely, lack of confidence. They saw themselves as thinkers, preferring reading to conversation as a source of ideas, brooding and philosophizing on the purpose of life, but finding few things really worth living for, and at times feeling that they themselves were quite useless. They considered themselves fast learners, hard to please, resentful of criticism or control by tradition and yet dedicated to a life of duty. They disdained the idea of belonging to several clubs, or being go-getters. One might characterize them, in brief, as introverts. The worst men spellers, on the other hand, presented the opposite syndrome. They placed high value on action and social contact rather than intellectualism and dedication. In brief, they accepted life without too much reflection as something to be enjoyed.

The best women spellers considered themselves to be intellectually efficient, composed, confident, and critical, but less gregarious than the weakest spellers among the women. Though the contribution to variance was quite small in the case of both men and women, the items were significant through seven successive cross-validations and cannot, therefore, be discounted.

Holmes also postulated the existence of a specific "reading personality" which might or might not be similar to the "spelling personality" depicted in his monograph. He hypothesizes that the mobilizing value systems and the substrata skills they bring into play may be quite different for such different tasks as reading and spelling (even though there is a relationship between the two abilities). Instead of vague global terms such as "personality adjustment," he believes that psychologists should be asking, "personality adjustment for whom and for what purpose?" Erikson (1950) has remarked on the fact that intellectual functioning may take on different modes according to the personality involved.

> Some grasp at knowledge as avidly as the cartoonist's goat who was asked whether she had eaten a good book lately; others take their knowledge into a corner and chew on it as on a bone; again others transform themselves into storehouses of information with no hope of ever digesting it all; some prefer to exude and spread information which is neither digested or digestible; and intellectual rapists insist on making their points by piercing the defenses of unreceptive listeners (p. 92).

Presumably each of these types would approach and utilize the same body of reading material in very different ways.

It is the purpose of this study to delineate the dimensions of the "reading personality." Since learning to read is regarded as a developmental crisis, it is predicted that successful readers will show those qualities enumerated by Erikson and others, notably Jahoda (1959), as characterizing the healthy personality, while poor readers will present the reverse picture. In other words, the personality of the good readers will be similar to that found among the best women spellers, and unlike that found in the best men spellers. Such a prediction might appear surprising, in view of the high relationship between reading and spelling at the primary level. One might suppose that the personality constellations involved would be approximately the same for the two abilities. However, the difference lies in the fact that reading, in this culture, is an important developmental task, indispensable to further academic achievement, while spelling is not--especially, it seems, for boys. Since the reading task is also universal, sex differences for the factors which make up the reading personality are not anticipated. However, in view of the known differences in masculine and feminine value patterns, sex differences may be expected in the relative weight of these factors. It is predicted that for both sexes the dimensions hypothesized from the Erikson-Jahoda schema would be descriptive of value systems as suggested by Holmes. Specifically these dimensions may be categorized as follows:

1. The good readers will show strong feelings of self-esteem, a firm conviction of their own worth, while the poor readers will display strong feelings of inferiority and inadequacy, especially in the school situation.
2. The good readers will have a strong intellectual orientation, with high value placed on school work and the benefits to be derived from school learning, while the poor readers will show dislike for school work and school activities.
3. The good readers will show a strong positive identification with teachers, while the poor readers will reject teachers as identification models.
4. The good readers will show realistic attitudes, free from need-distortion, about the demands of the environment and

their own ability to cope with these demands, while the poor readers will indulge in chronic day-dreaming and excessive overstatement of a positive or negative character.

5. The good readers will exhibit strong feelings of mastery, of being in control of the environment, of being liked and appreciated, while the poor readers will show distrust and have many dislikes and complaints.
6. The good readers will show a marked desire for autonomy and independence, while the poor readers will wish to remain dependent on their parents.
7. The good readers will be relatively free from anxiety and neurotic manifestations, while the poor readers will have a higher anxiety level and exhibit more neurotic symptoms.

If Erikson is correct in his assumption that lack of a successful resolution of the crisis at any stage of development will imperil progress at any subsequent stage, then success or failure at the reading "crisis," though it takes place around the age of seven or eight years, should have discernible effects at later stages--in this specific instance, at the twelve to fourteen year old level.

In the present study, a well-developed personality inventory was analyzed in several ways to determine whether a reading personality could be isolated according to the prediction of Holmes, and whether the value systems described by the differentiating items would fall into the several dimensions anticipated from the Erikson-Jahoda schema. From the integrated Holmes-Erikson theory the following two major hypotheses were drawn:

H_1 Differential personality patterns, consisting of constellations of specific attitudes and values, are related to reading success and failure.

H_2 The mobilizing value systems described by the constellations of items will fit the Erikson-Jahoda characteristics enumerated above.

CHAPTER II

REVIEW OF THE LITERATURE

The nature of the relationship between reading ability and personality factors has continued to fascinate investigators for the past thirty years. Interest in this area seems to grow rather than diminish. For example, Holmes (Bower & Holmes, 1959) found one hundred studies on this topic published between 1953 and 1958 alone. Probably the most compelling reason for this continued and growing interest lies in the incompatability of the findings, and the general air of inconclusiveness surrounding the topic. On the one hand, significant results are obtained with sufficient frequency to warrant the conviction that a relationship does exist. This conviction is reflected in the fact that almost any general textbook on reading published today is likely to contain a section on personality and reading. On the other hand, the precise nature of the relationship remains elusive. It tends to vary from sample to sample and from grade to grade.

Holmes (1961) has suggested three reasons to account for this inconsistency:

> 1) There may be a "gradient shift" in the relationship between personality factors and reading as children advance through the grades. It may be accessible to the usual personality measures in the primary grades, but become increasingly inaccessible and overlaid by other factors as the student progresses through high school and college.
>
> 2) Personality scales are usually standardized on clinical samples, and are applicable to normal school populations only for screening out subjects who manifest clinical symptoms, and for demonstrating the absence of such symptoms in individuals who are functioning normally. In brief, they reflect an outmoded concept of mental health as the absence of symptoms, and contribute nothing to our understanding of the positive aspects of reading success.

3) Personality scales, as they now stand, may simply be inappropriate measures for tapping academic achievement, since they were originally constructed for totally different purposes.

This study has been designed to take account of the above three possibilities. In the first place, since comparable data were collected annually on the same sample of adolescents over a seven-year period, if the experiment should prove fruitful, it will be possible to repeat the procedure at several different age levels, thus providing an opportunity to test the "gradient shift" hypothesis on a longitudinal sample. Second, the inventory to be used was constructed for the specific purpose of measuring normal personality development through adolescence and was validated on a normal population. It consists of items many of which relate directly to the average junior high school student's problems and aspirations, or which reflect his basic values and attitudes toward learning, independence, leadership, popularity, and the like. Hence the scales are designed to probe the student's adjustment to the areas of family, school, peers, or future vocation, rather than his standing on various clinical dimensions.

It is, of course, neither possible nor desirable to review all the literature in the area of personality and reading; and even if it were, it is unlikely that definite conclusions could be drawn. If the position assumed in this paper is correct, that learning to read is a developmental task, and that successful reading should, therefore, be associated with positive mental health, then a more profitable way of reviewing the literature might be to include studies which specifically examine the relationship of reading to those dimensions of mental health which have been drawn from the Erikson-Jahoda schema. Accordingly, the following four principles have been observed in the selection of articles to be reported. First, only those studies which bear directly on the dimensions enumerated in Chapter I have been considered and will be discussed under the appropriate headings. Second, in view of the possibility of a gradient shift, emphasis has been given, within these limitations, to studies made at the primary and junior high school levels. Third, since the empahsis here is on a normal school population, findings from studies using exclusively clinical samples have, for the most part, been omitted. Finally, but not least in importance, the quality of the study itself has been taken into account. While the above restrictions may have led to the exclusion of some pioneer or classic studies, it seemed probable that adherence to these principles would be more likely to produce conclusions having direct application to the present study.

1. Self concept

The first three studies to be cited used the California Personality Test and the California Achievement Test to measure personality and reading, respectively. Hallock (1958), in a factorial design which included sex, intelligence, reading achievement, and personality variables for 926 subjects in Grades 4, 6, and 8, found self-reliance and feelings of personal worth to be among the measures most significantly related to reading, with sense of personal freedom somewhat less related. Seay (1960) found significant relationships between personal, social, and total self concept and vocabulary, comprehension, and total reading scores for 72 boys of low reading ability and normal intelligence in Grades 4 through 7, and also for a matched control group with no reading problems. On the other hand, Carter (1958), in an analysis of covariance design with intelligence controlled, failed to find any significant differences in reading achievement between groups high, medium, or low on personal, social, and total adjustment, for 196 first grade children. Lumpkin (1959), comparing 25 pairs of fifth grade overachievers and underachievers in reading, matched on chronological age, mental age, sex, and home background, by means of statistical analysis and case histories, found the overachievers to have much more positive self concepts, a conclusion supported by Bodwin's (1957) finding of a positive and significant relationship between reading disability and immaturity of self concept as measured by the Machover Test at the third and sixth grade levels (.72 and .62, respectively). Spicola (1960) found the relationship between self concept, as measured by the McGuire-White Inventory Sheet and the Brownfain Categories Inventory, and reading achievement as measured by the Stanford Achievement Test to be significant for 381 sixth grade boys, but self concept did not add to the prediction of reading achievement over chronological and mental age. Blackham (1955) selected 15 overachievers and 15 underachievers from 155 pupils in the eighth and ninth grades on the basis of a Reading Achievement Index obtained by dividing the standard score on the California Reading Test by that obtained on the non-language section of the California Test of Mental Maturity, and evaluated their personality adjustment by means of the Rorschach, Thematic Apperception Test, and Mental Health Analysis. He found that the overachievers had significantly better mental health than the underachievers, differences which approached statistical significance being found in the areas of immaturity, emotional instability, feelings of inadequacy, and attitudes concerning physical defects. Similarly, Malmquist (1958), using a sample of 399 pupils systematically selected to represent the first grade of all Swedish primary schools, found reading ability to be definitely associated with self confidence and stability as judged by teachers' ratings.

More specifically, Bricklin (1963) found that among eighth grade boys, a group with comprehension and word recognition difficulties in reading had more negative self concepts than an achieving group, or a group experiencing comprehension difficulties alone. Sopis (1965) likewise found self image as a reader to be positively correlated with reading achievement for boys.

The research cited in this section tends to support the hypothesis that good readers frequently have more positive self concepts than poor readers. This finding seems to hold for a variety of measures of self concept and for all grade levels from three through nine. More specifically, feelings of adequacy and personal worth, self-confidence and self-reliance seem to emerge as important factors in the relationship with reading achievement. Conversely, Bodwin, Blackham, and Lumpkin found underachieving readers to be characterized by immaturity, impulsivity, and negative feelings concerning themselves and their world. The work of Bricklin and Sopis suggests that the relationship may be defined more specifically in terms of particular reading deficiencies and the self image as a reader.

However, neither adjustment nor self concept scores were found to contribute to the prediction of reading in the studies by Carter and Spicola. Three comments may be made on this point: (1) the measures used may have been too gross to be effective predictors, and it is possible that tests measuring limited aspects of adjustment or self concept would succeed where the global measures failed; (2) there may be a certain amount of variance common to each of these personality measures and intelligence, which would be lost by partialling out intelligence, as was done in these studies; (3) initially, Carter grouped her first grade subjects according to their level of adjustment, before testing for significant differences between the groups on reading achievement. However, the children in the low group may have been poorly adjusted for a variety of reasons, and conversely, many children in the well-adjusted group may not have reached a stage of reading readiness in other areas such as vocabulary. In other words, a minimum level of adjustment may be a necessary, but not a sufficient condition of reading success, and a different regression line may be expected according to whether reading or personality is used as the dependent variable. These negative findings emphasize the need for more specific personality measures to be constructed in terms of a reading criterion, a task which is undertaken in the present study.

Also of interest in terms of the gradient shift hypothesis is Bodwin's finding of a high relationship at the third grade level becoming somewhat attenuated by the sixth grade. Hallock's finding that the relationships between reading and self-reliance and feelings of personal worth persisted through Grades 4, 6, and 8, and his conclusion that these attitudes were present probably as early as kindergarten or Grade 1 is also consonant with Erikson's theory.

2. Intellectual attitudes

In a series of studies of disabled readers, Witty (1950) has consistently emphasized the relationship of personal attitudes to reading success and failure. In one of his unpublished studies he found that 66 per cent of poor readers in his sample disliked school or were indifferent pupils, and that in 42 per cent of these cases reading was the most disliked subject. Almost one-third of this group expressed the feeling that experiences in the first grade had contributed to this failure. Gates (1936) also found such symptoms as indifference, inattentiveness, and apparent laziness to characterize one-third of a group of 100 disabled readers in the primary grades. Johnson (1959) found that even though two groups of children made equivalent scores on reading readiness tests in the first grade, they could be categorized as "eager" or "reluctant" readers on the basis of their attitudes toward reading, and that these attitudes were predictive of reading success in the second grade. Sister Mary Peter (1963) found ten psychological factors which might be considered indicative of intellectual attitudes to be predictive of progress in a remedial reading course at the elementary level. Maw and Maw (1962), in two studies, found that fifth grade children rated high on curiosity by their teachers tended to sense the meaning of sentences more accurately than children of equal intelligence but less curiosity. Groff (1962) found that fifth and sixth graders' critical reading ability was significantly affected by their attitude toward reading as a school subject and toward the type of reading material presented, while the evidence also suggested a relationship between general reading ability and attitude toward reading. However, the relationship between critical reading and attitude toward school, as measured by Tenenbaum's School Attitude Questionnaire, was negligible. In a study of sixth graders' reading preferences, Reed (1962) found that the only scale on the Mental Health Analysis which related to the total number of books read by the student was the variable named Satisfactory Work and Recreation, consisting of items about interest in school work, time for reading, and liking for challenging tasks. Granzow (1954) at the sixth and seventh grade levels found that underachievers in reading were rated by their teachers as being less well-adjusted to school rulings and procedures than overachievers. Bibliotherapy was used by Herminghaus (1954) at the eighth grade level to effect significant and positive changes in total adjustment and self adjustment, as measured by the California Test of Personality. Bauer (1956) factor analyzed domain scores from the U. C. Inventory, along with staff ratings of social behavior and "drives" for 68 ninth grade boys in the California Adolescent Growth Study. The only personality variables to show a relationship with reading were "self-expressiveness," defined as "talkative, active, peppy, busy, animated, eager," and "drive for achievement," defined as ". . . desire to attain a high standard of objective accomplishment; to increase self-regard by successful exercise of talent, to select hard tasks; high aspiration level." The loadings for these two traits were .45 and .54, respectively. Bauer concluded that no clear-cut personality patterns existed by which one could identify good or poor readers.

Since reading is the basis of most other school subjects, it seems logical to suppose that when the child finds reading a pleasurable experience, his positive attitudes will rapidly become generalized to most other subjects. The child who has advanced to a competent mastery of the reading process may be expected to be much more stimulated by the new areas of knowledge which open up to him through reading than one who is still struggling with the mechanics of reading, and in exploring new fields he will continue to refine and develop his skills. In view of this mutual development of reading ability and intellectual attitudes, a close relationship might be expected. The available evidence, scattered and meager though it is, tends to support the view that good readers are likely to be more intellectually oriented than poor readers. Certainly no studies were found which contradict this general tendency. Granzow, Witty, and Gates suggest that poor readers tend to dislike school in general and reading in particular, and this suggestion is borne out by Sister Mary Peter's study of remedial readers. Bauer found that drive for achievement and a high activity level were the only personality variables to show a relationship to reading where measures of adjustment and traits failed. Johnson's study suggests that the child who is reluctant to engage in reading activities in the first grade is immediately handicapped, even though his reading skills are equivalent to those of the eager reader, while Groff's findings show that the student's attitude toward reading becomes increasingly important as the reading task demands the use of inferential and interpretive skills. Though often incidental to the quest for other types of relationship, the combined findings in this section suggest that the area of intellectual attitudes is sufficiently promising to warrant further research.

3. Identification with teachers

If reading is closely associated in the student's mind with school work and teachers, then presumably the good reader will be able to identify with the teacher much more easily than the poor reader. This assumption has not been experimentally tested, and the studies reviewed in this section have only indirect bearing on the issue. Filipelli (1964) found retarded readers to have significantly poorer identification with both parents, and to be more often identified with a frustrating and relatively masculine mother, but the hypothesis did not extend to teachers. Biel (1945) and other writers have hypothesized that the known sex difference in the number of reading disability cases may be attributable, at least in part, to the difficulty boys experience in identifying with women teachers in the primary grades, so that they come to view school work, and especially reading, as unmasculine activities. Gowan (1955) and Fliegler (1957), after reviewing the literature on gifted underachievers, point out that the underachiever is usually characterized by an inability to identify with authority figures, or to create warm relationships with either teachers or peers. Dorney (1963) found that delinquent adolescent boys improve significantly in their attitude toward authority figures after a course of reading instruction, as opposed to instruction in swimming or no instruction at all. Penningroth (1963) also found feelings about parents and teachers to be one of a constellation of negative school attitudes differentiating disabled readers who dropped out of school at the ninth grade from those who did not. Strickler (1964) observed that retarded readers tend to manifest their negative reactions to adult authority figures through passive non-compliant behavior, and that a combined remedial and counseling program was more beneficial in changing these attitudes at the elementary, rather than the secondary level. Miller (1955) attempted to measure identification with the teacher among eighth grade students, using Q-sorts of items based on Murray's list of traits, but failed to find any relationship between identification scores and classroom achievement in English, when intelligence was partialled out.

In spite of Miller's finding to the contrary, there is some evidence to support the hypothesis that lack of identification with teachers is a common characteristic to be found among underachieving students, especially if they are gifted.

4. Perception of reality

Margulies (1942) administered the Rorschach to three equated groups of 146 junior high school boys matched on CA and IQ, and found that, in addition to being better adjusted and more stable, students judged as successful readers by their teachers were more aware of their environment. Shrodes (1949), in a series of carefully documented case studies, described changes in students' self-awareness and growth of insight into the motivations governing behavior as the result of a course of directed reading. Conversely, the development of richer and more accurate perception led back to a fuller and deeper comprehension of the literary works themselves. Shrodes expresses the hope that bibliotherapy may serve "to restore the person to himself, so that he may know who he really is, then the great writers will speak to him and reach him, for he trusts the self he brings to them" (p. 327). Ramsey (1962) has remarked that poor readers are much less realistic in their estimates of themselves as readers, while Bouise (1955) and VanZandt (1963) have demonstrated a similar lack of realism with respect to educational and vocational aspirations. Barber (1952), likewise, found poor readers to be deficient in ego strength, which she defined as "the ability to gauge reality and synthesize behavior in appropriate goal-directed activity." Jackson (1944) surveyed a large number of psychological, social, and environmental differences between advanced and retarded readers, and concluded that although there was no difference in the number of fears held by the two groups, the vague, indefinite fears of the retarded readers showed "an early conditioning of the individual through erroneous conceptions of the environment." Gates (1936) observed 26 cases of "recessive behavior," including chronic mind-wandering and day-dreaming, among 100 poor readers.

Studies relevant to this section are few in number, and the findings meager at best. Though slight, there is some evidence to suggest that poor readers are less clear in their perceptions about themselves and, generally speaking, less realistic about the demands of the environment and their ability to cope with these demands than good readers.

5. Active mastery of the environment

Blackham (1955) found ninth grade overachievers in reading to have a greater amount of intellectual energy at their disposal, to be more spontaneous and creative and able to make finer intellectual discriminations, but not superior in adequacy of outlook and goals. Tabarlet (1958) studied 43 children in Grade 5 who were two or more years retarded in reading and found them inferior to normal readers in interpersonal skills, social participation, satisfactory work and recreation, and adequate outlook and goals. Norman and Daley (1959) found clusters of items suggesting feelings of "environmental deprivation" and maltreatment to differentiate poor male readers in the sixth grade. Spache (1954, 1957) made two studies of the personality patterns of retarded readers of primary age as revealed by their reactions on the Rosenzweig Picture-Frustration Test, and concluded that the typical retarded reader did not possess much insight into the human dynamics of a situation, but tended to react by projecting his own feelings on the environment, and to make little or no attempt to work out situations which would be agreeable to all parties. In the second study Spache tested 125 retarded readers on the children's form of the Picture-Frustration Test and concluded that these children were less insightful, had greater tendencies to self-blame, were more defensive and negativistic, had fewer social-conforming traits, manifested less tolerance and solution-seeking tendencies, and were more hypersensitive and aggressive toward other children than their normal counterparts. In all, he identified five personality patterns characteristic of poor readers, none of which could be considered indicative of environmental mastery. Abrams (1955) also concluded that non-readers were more impulsive and less able to respond appropriately to environmental stimuli than good readers. On the other hand, Gordon (1952), in a clinical study of good and poor primary school readers, using interviews and projective techniques, failed to find any clear-cut personality patterns among either good or poor readers. Wynne (1955), in an unpublished study of children in Grades 4, 5, and 6, found only a slight relationship between general personality and reading scores, but item analysis revealed that reading scores may be closely related to personality clusters such as confidence, conformity to accepted standards, and good social relationships with peers and adults.

Good readers, to judge from the studies reviewed in this section, are more adequately equipped to deal with the immediate physical and social circumstances of their surroundings and do attain a greater degree of environmental mastery, particularly in terms of social skills. Spache especially has found a number of inappropriate behavior patterns to be characteristic of poor readers. On the other hand, Gordon failed to find any differences between good and poor readers on any personality measures. However, this finding is opposed to the general trend, in terms of the variables under discussion, and it may be tentatively accepted that good readers do show superior skill in coping with their environment.

6. Autonomy and independence

Shatter (1956) investigated the effectiveness of a group therapy program, including the child and his mother, for the treatment of reading disability over a period of nine months. Twenty-four fourth grade boys, all of normal intelligence, and having at least two years' reading retardation, were divided into experimental and control groups, equated for age, intelligence, and extent of retardation. Children in the experimental group made significantly larger reading gains than their controls, and also showed large differences in maturity, independence, and self-esteem. Stephens (1964) also found a significant difference in self-reliance, as measured by the California Test of Personality, favoring able accelerated readers over able retarded readers. In an interesting study comparing the attitudes of parents of good and poor readers toward certain child-rearing practices, McGinnis (1965) revealed a cluster of ten Parent Attitude Rating Inventory (PARI) scales suggestive of attitudes favoring growth of independence, democratic practices in the home, and encouragement of activities which expose the child to external influences.

Seeman and Edwards (1954) provided an average of 67 daily sessions of play activities for an experimental group of children who were low both in reading achievement and personality adjustment. This group made significantly greater reading gains over the four-month period, but showed a decrement in personality adjustment, a circumstance which may possibly be attributed to the personality disorganization which sometimes takes place in the early stages of therapy. Natchez (1958) found that in oral reading retarded readers manifested a significantly greater proportion of dependence, aggression, and withdrawal reactions than did non-retarded readers. Carrillo (1957) compared 50 good and 50 poor readers by means of parent interview and questionnaire. The emotional and social history of the poor readers showed a lack of independence, an inability to adjust to change, avoidance of leadership opportunities, and a poor attitude to responsibility.

The studies cited in this section present fragmentary evidence to support the view that the child who has made a good start in reading will tend to show more autonomous and independent behavior than the one who is still struggling with the mechanics of the reading process. Whether these tendencies were present at an earlier age, giving him the necessary confidence to embark on the task of learning to read, or whether they are a result of his initial success in this area cannot be determined from these studies, but the former interpretation receives some support from the work of Carrillo. A more plausible theory is that of mutual cause-and-effect, or rather, mutual development. No studies were found which showed poor readers to be superior on the autonomy dimension.

7. Anxiety

Smith and Carrigan (1959) have suggested that anxiety is an important dimension in reading disability, its role being to excite some functions such as fluency, and to depress others such as word recognition and day-to-day memory. McDonald (1960) found that the reading comprehension of highly anxious college students deteriorated to a much greater degree than that of non-anxious subjects when the reading was interrupted periodically. Scarborough, Hindsman, and Hanna (1961) found that anxiety, while not itself a main factor, facilitated the reading performance of highly intelligent students, while for students of average intelligence a low level of anxiety was accompanied by superior performance, and for students of low intelligence the level of anxiety did not seem to make much difference. Lynn (1957) found anxiety to accompany a disparity in performance favoring reading over arithmetic among both primary and secondary students. Rowland (1961), on the other hand, found no such relationship among sixth grade boys. Similarly, Anderson (1964) failed to find an increase in the anxiety level of fifth and sixth grade boys to have any differential effect on general reading achievement or specific reading skills. However, Pacheco (1964) found significant inverse relationships between anxiety and reading comprehension for both boys and girls in the sixth grade.

In general, the role of anxiety in reading success or failure remains in some doubt. Nevertheless, it is of particular importance to the present study, because Holmes has hypothesized a close association between an individual's anxieties and his values, in the sense that anxiety is aroused whenever a value is threatened (1960, p. 3). Apparently the relationship is not a simple one, depending among other factors, on the level of intelligence, and on whether the anxiety is neurotic or reality anxiety. But the combined evidence seems to support the picture drawn by Neal (1964) and Joseph and McDonald (1964) of the poor reader as being generally more neurotic, anxious, and ambivalent toward himself and others than his normal counterpart.

General summary

In 1941, Gates reviewed the literature on reading and personality and came to the conclusion that no single personality variable or pattern is characteristic of all cases, or even of all serious cases, of reading disability. Most of the studies here reviewed have been conducted since 1941. In spite of the large volume of research in this area, no definite and incontrovertible relationships appear to have been established, and no integrated picture of the reading personality is apparent. On the other hand, it is equally impossible to state with confidence that a relationship does not exist. However, the majority of studies were conducted without reference to a theoretical framework and without cross-validation.

The rigorous selection and organization of studies into sections corresponding to the criteria of mental health posited by Erikson and Jahoda is an attempt to reduce the mass of research to meaningful proportions. All studies which had some bearing on one or more of these criteria were considered. Often the number of studies relevant to a section was so small that no selection was involved. Where selection was necessary, the relevance of the study to the present investigation, the grade level of the sample employed, and the quality of the study itself were the primary criteria for inclusion. It is interesting to note that this procedure eliminated many of the studies with negative or inconclusive results.

This organization has made it possible to draw a few tentative conclusions. Perhaps the most valid of these relate to the self concept. In general, the ability to read well seems to be associated with positive attitudes about one's self and one's worth, leading to feelings of self-confidence and self-reliance. Conversely, poor readers manifest correspondingly immature self-concepts. Similarly, the available evidence seems to support the view that intellectual attitudes, drive for achievement, and a liking for school work are more prevalent among good readers. Though it is plausible to suppose that they might also identify more readily with their teachers, this hypothesis has not been tested. However, research on gifted underachievers lends some support to this view. Likewise, there is little evidence to determine whether good readers are more perceptive and realistic about the demands of the environment in relation to their own needs, or about their capacity for dealing with situations brought about by these demands and needs. There is some reason to suppose that good readers do, in fact, have a greater command of their environment, and can, in consequence, afford to be more autonomous and independent. Finally, the function of anxiety in reading remains unclear. Both reading and anxiety are complex variables; hence, the relationship between them is highly complicated. In addition, the available measures of anxiety are relatively crude. These factors may explain to some degree the lack of consistent findings. Perhaps a major task in this area is to separate reality anxiety--that which the individual can utilize in a constructive way to further his own ends, which unites him and gives him a sense of purpose--from neurotic anxiety--that which works to his disadvantage, which divides him against himself, and makes his life chaotic. Much work also remains in studying individual differences in anxiety tolerance.

What is reality anxiety for one may be neurotic anxiety for someone with a lower level of tolerance. One hypothesis which may be plausibly stated and tested in this study is that reading performance will be inversely related to neurotic anxiety.

The evidence to support the position taken in this paper that good readers will manifest characteristics designated by Erikson and Jahoda as criteria of mental health is far from conclusive, but certainly it is sufficiently promising to warrant a theoretically oriented investigation of greater depth and comprehension than any of the studies here reviewed.

CHAPTER III

THE RESEARCH DESIGN

This project is a then and now study of thirty-years' span designed to fulfill the following objectives:

(1) to hypothesize from the integration of two theories a set of personality factors that would be related to reading success at the junior high school level;

(2) to establish empirically by means of a double cross-validation, at the ninth grade (1935), the statistically significant personality items which predict reading success;

(3) to determine, by intercorrelation and factor analysis of the significant items, the psychological nature of the personality factors that contribute to reading at the ninth grade (1935);

(4) to refine and expand these factors, by regrouping or omitting overlapping items where necessary;

(5) to validate these new factors longitudinally at the eighth (1934) and seventh (1933) grade on the same sample;

(6) to establish the validity and temporal stability of the ninth grade (1935) factors now, thirty years later, in Grades 7, 8, and 9 (1966);

(7) to determine, by means of multiple correlations, the contribution of each factor to reading success at each grade level.

The paradigm for the research design to be described below appears in Figure 2.

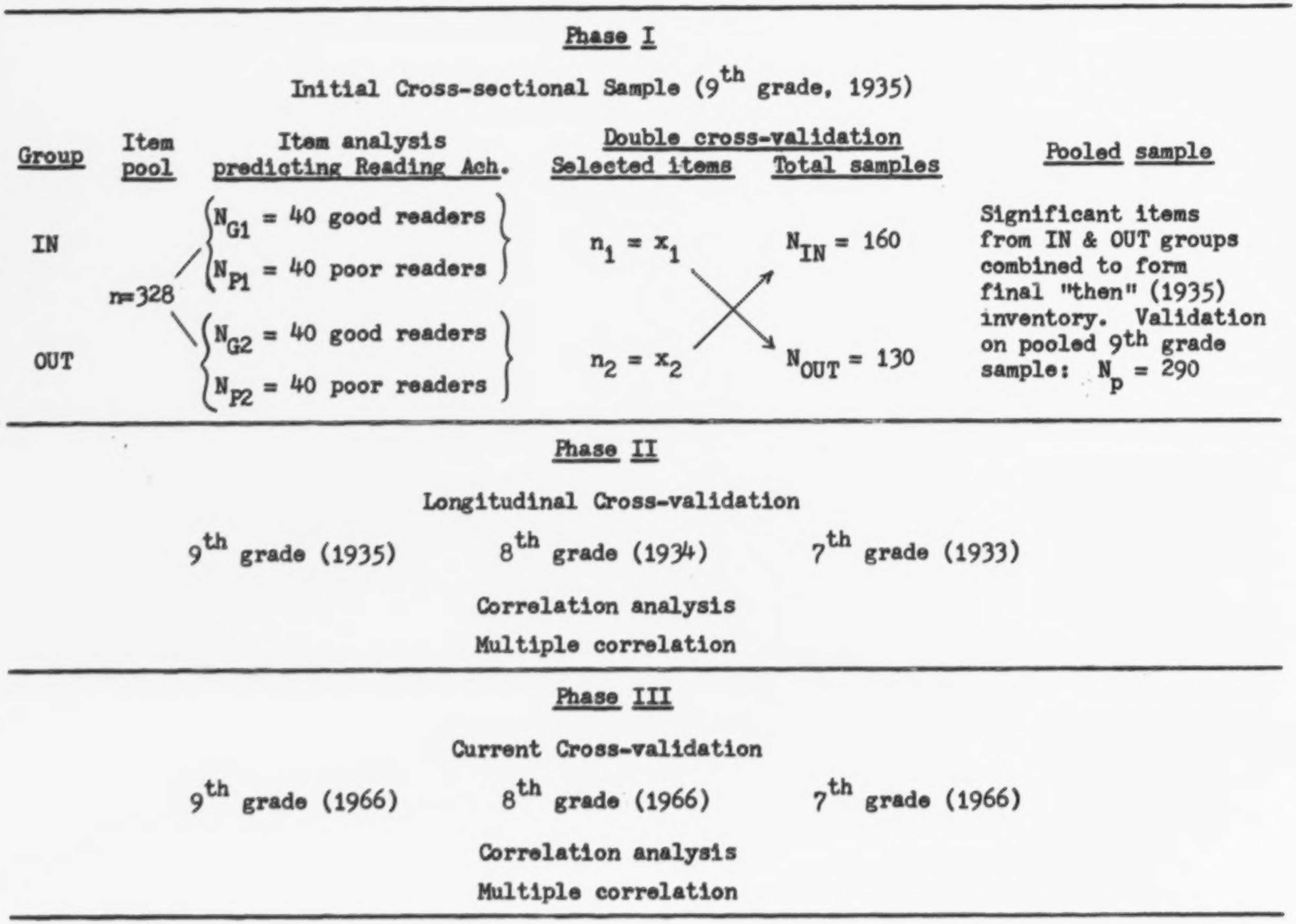
Phase I
Initial Cross-sectional Sample (9^{th} grade, 1935)
Group
Item pool
Item analysis predicting Reading Ach.
Double cross-validation
Selected items
Total samples
Pooled sample
IN
OUT
n=328
N_{G1} = 40 good readers
N_{P1} = 40 poor readers
N_{G2} = 40 good readers
N_{P2} = 40 poor readers
$n_1 = x_1$
$n_2 = x_2$
$N_{IN} = 160$
$N_{OUT} = 130$
Significant items from IN & OUT groups combined to form final "then" (1935) inventory. Validation on pooled 9th grade sample: $N_p = 290$
Phase II
Longitudinal Cross-validation
9^{th} grade (1935)
8^{th} grade (1934)
7^{th} grade (1933)
Correlation analysis
Multiple correlation
Phase III
Current Cross-validation
9^{th} grade (1966)
8^{th} grade (1966)
7^{th} grade (1966)
Correlation analysis
Multiple correlation

Fig. 2. Paradigm of research design.

The Subjects

The data for this investigation were derived from two sources:

A. The "then" data were selected from the files and records of the California Adolescent Growth Study conducted by the staff of the Institute of Child Welfare (now the Institute of Human Development) at the University of California, Berkeley, under the directorship of Dr. Harold E. Jones. The program of data collection has been described in several papers by Jones (1936, 1939a, 1939b, 1943, 1960).

With regard to socioeconomic status and parental occupation, semi-skilled and unskilled workers were somewhat underrepresented, the sample being, in terms of occupation and educational level, of predominantly "middle-class selection" (70 per cent of the boys and 47 per cent of the girls) (Jones, 1949, p. 4).

B. The "now" data were obtained from the seventh, eighth, and ninth grades in three schools in Albany, California of approximately the same socioeconomic level and racial composition as the school used in the "then" phase.

The Variables

The criterion test for power of reading was the Paragraph Meaning subtest of the Stanford Achievement Test. The group personality measure was the University of California Inventory (UCI), constructed as part of the Adolescent Growth Study (Tryon, 1933). From the initial pool of 328 items, those which withstood the double cross-validation became the new inventory to be used for subsequent validations on the longitudinal and developmental cross-sectional samples.

The Analyses

A. Double cross-validation (Grade 9; 1935)

1. Item analyses were conducted to determine the discriminating power of each of the 328 items, using the top and bottom 27 per cent of the reading distribution as criterion groups (N = 40 each group).[1] In items where the response was spread over a 5- or 10-point scale, the frequencies were added and the distribution of response dichotomized at the point which maximized the difference between good and poor readers. The total IN Sample of 160 was rescored on the basis of these 33 items and the scores correlated with power of reading for boys, girls, and total IN Sample.

In the first cross-validation, the total OUT Sample of 130 subjects was rescored on the same 33 items, and the new scores correlated with power of reading for boys, girls, and total OUT Sample. To determine whether the correlations remained stable, or changed significantly from IN to OUT Sample, t tests were made for boys, girls, and total groups.

The entire procedure was then repeated, starting with the 130 OUT subjects as the basic sample. Criterion groups were selected from the reading distribution of the OUT Sample (N = 40 each group), and the response frequencies of these groups submitted to the chi-square test.

Under these conditions, 34 items were found to be significant. The total OUT Sample of 130 was rescored on the basis of these 34 items, and the resulting scores correlated with power of reading for boys, girls, and total OUT Sample.

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[1] Following Edwards' (1950) recommendation, the correction for continuity was consistently applied in the formula

$$X^2 = \frac{N(bc - ad - \frac{N}{2})^2}{(a+b)(c+d)(a+c)(b+d)}$$

In the reciprocal cross-validation, boys, girls, and total IN Sample were also rescored on the 34 items selected on the basis of the OUT Sample, and the scores correlated with power of reading. Again t tests were made to determine the stability of the correlations from the OUT to the IN Sample.

For the final phase of the item analysis, the IN and OUT Samples were combined to form the POOLED Samples (PS) of 290. This procedure appeared justified for the following reasons:

(1) Examination of the significant items from the IN and OUT analyses revealed a 50 per cent overlap in the content of the two scales;

(2) The means and standard deviations for the two scales did not differ significantly; and

(3) The correlations with power of reading were sufficiently stable from group to group across the two samples.

The final phase comprised three analyses, PS-Boys (N=40 in each tail), PS-Girls (N=40 in each tail), and PS-Total (N=80 in each tail). Only a very few items were found to be significant for one sex only. The final scale consisted, therefore, of the 70 items which were significant for the tail groups of the total POOLED Samples. Scores on this scale were correlated with power of reading for all groups.

2. Correlation analysis: Each subject was allocated a score of 0 or 1 according to whether his reading score fell below or above the mean of the POOLED Samples. This reading score and the scores on the 70 dichotomous personality items in the final scale were submitted to a tetrachoric correlation analysis, yielding a 71 x 71 matrix.[2] Guilford (1956)

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[2] Guilford's (1956) formula was employed in the program GP0068, written according to the specification of the writers by K. Cox, Survey Research Center, University of California, for the 1620 computer.

points out that the reliability of the tetrachoric r approaches that of the Pearson r when the frequencies are evenly distributed among the four cells, but decreases as the frequencies in one or more cells approach zero. In order to minimize this unreliability associated with low frequencies and to eliminate the possibility of obtaining a matrix which was non-Gramian, i.e., one with "communalities" greater than 1.00,[3] all items which tended to produce cell frequencies of five or less were removed from the matrix, with the reservation that they should be retained in subsequent cross-validation studies on account of their discriminating power. This procedure eliminated 11 personality items, thus reducing the matrix to 60 x 60.

3. Factor analysis: The 60 x 60 tetrachoric correlation matrix for the total POOLED Samples was next submitted to a principal components factor analysis,[4] with 1's in the diagonal, and the specification that the rank of the matrix be equal to the number of factors whose eigenvalues were greater then 1.0, as recommended by Kaiser (1960). For the total POOLED Samples, 21 factors were extracted, many of which consisted of a very small number of items. For the purpose of later test construction such factors would, of course, be inadequate and unreliable. When a graph of the eigenvalues for the 21 factors was plotted (Fig. 3), it was found that these values declined sharply at first, and then began to level off markedly at the fourth factor, reaching an asymptote at the seventh factor. The matrix was, therefore, factor analyzed again with the specified rank

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[3] The writers are indebted to Henry F. Kaiser for a personal communication on this matter.

[4] The program FA80, written by Alan B. Wilson of Survey Research Center, University of California, was used on the 7094 computer.

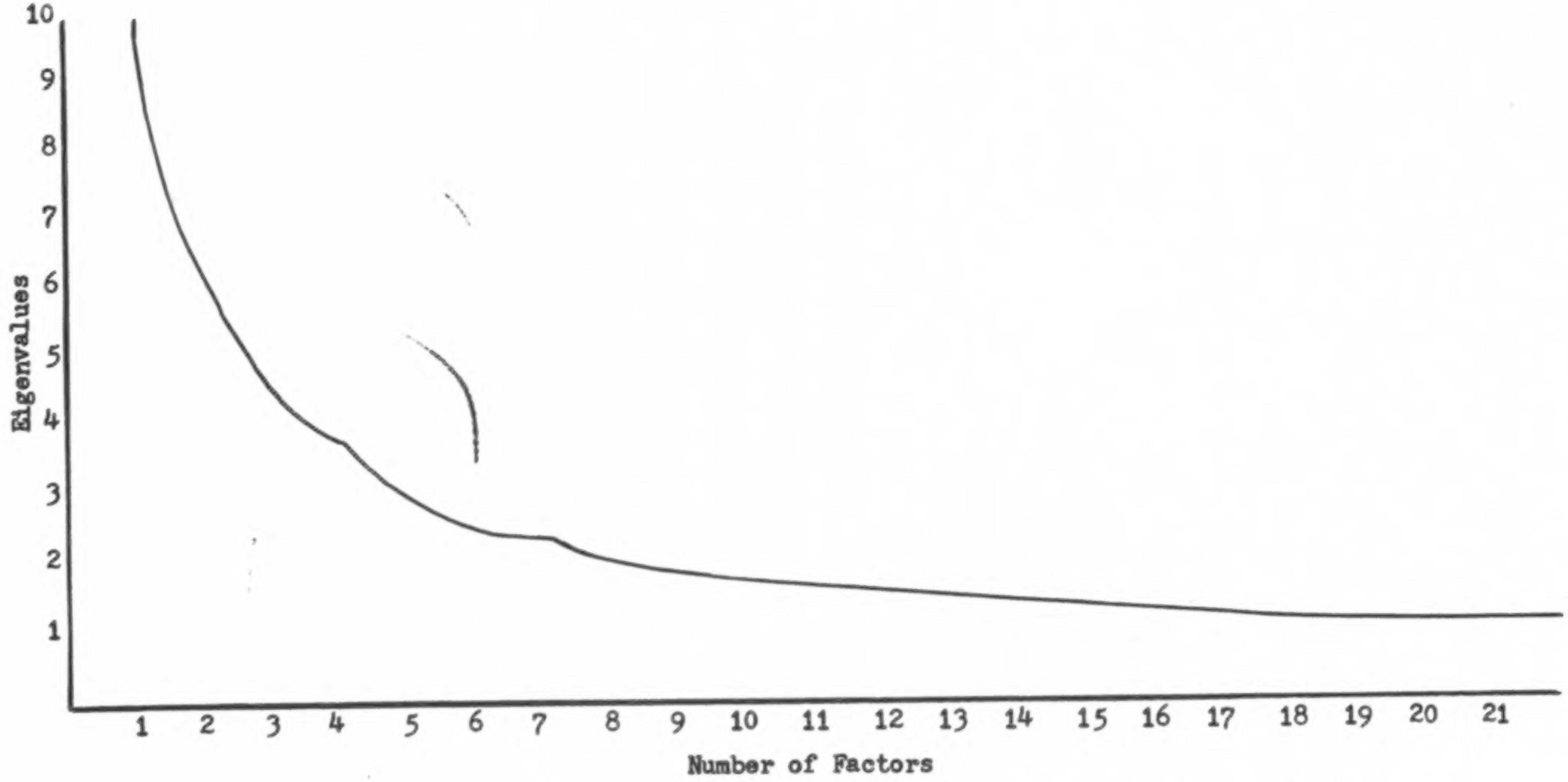

Fig. 3. Decline in eigenvalues in relation to increasing number of factors extracted.

of seven, five, and finally four, using varimax rotation in each case for maximum interpretability. Identification and discussion of these factors will be found in the next chapter.

B. Construction of new scales (Grade 9; 1935)

For several reasons it appeared desirable to eliminate the overlap in items among the seven factors, and to dispense with three of the factor scales which were too short to be reliable. On the basis of the four-factor analysis, and the distribution of factor loadings of the items in the five- and seven-factor analyses, the seven factors were purified and strengthened to form a four-factor inventory.

C. Longitudinal cross-validation (Grade 7, 8; 1933, 1934)

The same IN Sample (N=160), which formed the basic group for the longitudinal cross-validation, was rescored on the new factor scales from inventory responses obtained when the students were in Grade 7 (1933) and 8 (1934). These scores were correlated with the 1933 and 1934 SAT reading scores, and the correlations compared with those obtained in 1935.

D. Current cross-validation (Grade 7, 8, 9; 1966)

The new factor scales and the SAT Paragraph Meaning were administered to new samples in three Albany, California schools, and the factor and total scores correlated with reading.

E. Multiple correlations

A multiple correlation analysis with reading as the criterion and the five personality factor scores and socioeconomic status as the independent variables was conducted for each grade level in 1933, 1934, 1935, and 1966.

CHAPTER IV

THE RESULTS

Operationally, the major purpose of the first phase of this investigation was to determine whether personality items drawn from a pool on the basis of (a) their ability to differentiate reliably between good and poor readers, would also (b) exhibit a coherence of content that was meaningful in terms of a set of theoretical predictions specified in Chapter I. In brief, the objective was to discover stable and psychologically meaningful dimensions of the reading personality, which, in subsequent phases, could be examined in terms of development during adolescence over a three-year period in two generations. Part I, then, of the present chapter is devoted to an account of the results obtained at each step in the various analyses designed to accomplish this objective. Part II reports the results of a longitudinal extension of the validation of the ninth grade scales to grades 8 and 7 on the same sample (1935, 1934, and 1933). Part III reports the results of a temporal extension of the validation procedure in order to assess the stability of the reading-personality relationships identified in one generation of students (1933-1935) to another generation (1966).

Part I

Double Cross-Validation (Grade 9; 1935)

Item Analyses

The first item analysis yielded 33 items which differentiated at or beyond the .05 level of confidence between the criterion groups of 40 good and 40 poor readers who were drawn from the original IN Sample of 160 students. A new score for each subject was now recalculated from these 33 items in the U. C. Inventory. Each item was rescored 0 if the subject's response was like that of the poor readers, and 1 if his response was like that of the good readers in the criterion groups.

Using the average, as well as the good and poor readers, these new scores were now correlated with power of reading, and the following Pearson _r_'s obtained: IN-Boys, .69; IN-Girls, .52; IN-Total, .61. These _r_'s, of course, are spuriously high because the individuals in the tails of the reading distribution from which the items were selected were also included in the total IN Sample. In order to eliminate this bias, a new sample was needed.

In the first cross-validation, the OUT Sample was, therefore, rescored on the same 33 items, and the following correlations with reading found to obtain: OUT-Boys, .43; OUT-Girls, .62; OUT-Total, .53. All of these Pearson _r_'s are significant beyond the .01 level of confidence.

The magnitude and stability of these correlations were encouraging, especially in view of the original correlations of reading with the U. C. Inventory scales. Table 1 shows the original correlations for the boys, girls, and total group, with the addition of Bauer's (1956) correlations for 68 boys from the same ninth grade sample. It appears that the selection of items on the basis of the reading criterion considerably improves their power to predict reading achievement.

Table 1

Correlations of Original U. C. Inventory Scales with Reading

Inventory scale (using 328 items)	Boys (N=78)	Girls (N=69)	Total (N=147)	Bauer (N=68)
Social maladjustment	.196	-.053	.072	-.06
Personal inferiority	-.019	-.308	-.157	.10
Overstatement	-.185	-.267	-.220	.07
Family maladjustment	.042	.029	.039	.13
Physical symptoms	-.086	-.102	-.092	.07
Fears	.087	.056	.047	-.01
Generalized tensions	-.182	.183	-.019	.12
School maladjustment	-.001	-.133	-.047	-.02

The same procedure was now repeated, using the 130 OUT subjects as the basic sample. This second item analysis yielded 34 items[1] which differentiated at or beyond the .05 level of confidence between the 40 good and 40 poor readers who formed the criterion groups of the OUT reading distribution. Again, using the average as well as the good and poor readers, each subject in the OUT Sample was rescored on the 34 items, and these new scores correlated with power of reading. The following Pearson $\underline{r}$'s were obtained: OUT-Boys, .52; OUT-Girls, .61; OUT-Total, .57.

In the reciprocal cross-validation, the IN Sample was also rescored on the same 34 items, and the following correlations with power of reading obtained: IN-Boys, .42; IN-Girls, .43; IN-Total, .43. All these Pearson $\underline{r}$'s are significant beyond the .01 level of confidence.

Table 2 shows the means and standard deviations for the two item analyses. Table 3 shows the correlation coefficients and $\underline{z}$ values obtained when the test for significance of the difference between two correlation

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[1] Seventeen, or 50%, of the significant items were common to the two analyses.

Table 2

Means and Standard Deviations of Two Personality Scales for the Various Sample Groups

	IN scale (33 items)	OUT scale (34 items)
IN-Boys (N = 81)	M = 21.27 SD = 3.83	M = 22.07 SD = 4.32
OUT-Boys (N = 65)	M = 22.02 SD = 3.58	M = 23.02 SD = 4.92
IN-Girls (N = 79)	M = 20.42 SD = 3.95	M = 20.68 SD = 4.80
OUT-Girls (N = 65)	M = 19.72 SD = 4.36	M = 20.54 SD = 5.77
IN-Total (N = 160)	M = 20.85 SD = 3.90	M = 21.39 SD = 4.61
OUT-Total (N = 130)	M = 20.87 SD = 4.13	M = 21.77 SD = 5.48

Table 3

Correlations between Reading and Two Personality Scales for the Various Sample Groups

	IN scale (33 items)	OUT scale (34 items)
IN-Boys (N = 81)	.688	.420
OUT-Boys (N = 65)	.433	.522
	$z = 2.241$	$z = .764$
	$p < .05$	ns
IN-Girls (N = 79)	.517	.431
OUT-Girls (N = 65)	.622	.606
	$z = .912$	$z = 1.59$
	ns	ns
IN-Total (N = 160)	.600	.425
OUT-Total (N = 130)	.533	.567
	$z = .840$	$z = 1.59$
	ns	ns

coefficients was applied (Edwards, 1950, p. 131). For five of the six comparisons, the correlation coefficients did not change significantly. Moreover, the means and standard deviations fluctuated only very slightly from group to group.

The relative stability of the means, standard deviations, and correlation coefficients from group to group appeared to justify combining the two samples for the purpose of performing a third comprehensive item analysis, the results of which could be accepted with a measure of confidence in their stability. The two samples were, therefore, pooled, and the final analysis performed on the tails of the combined distribution (N=80 in each tail). As might be expected, most of the items from the IN and OUT scales reappeared in this list, with the addition of new items which were raised to significance level by the increased sample size.

For inclusion in the final PS scale, the same two criteria were employed as in the two previous analyses. First, the item had to be significant at or beyond the .05 level of confidence[2] for at least one group; second, the direction of response had to be stable across all groups, since any fluctuation in this respect would indicate unreliability of the item. Table 4 lists the 70 significant items which fulfilled both criteria, and hence were included in the PS scale. The chi-square value and the significance level are in columns to the left of the item; the response and the group of which it is characteristic are in columns to the right of the item. The figures in parentheses mark the point at which a 5- or 10-point item was dichotomized (Rogers Four and Tryon II subtests).

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[2] However, tabled values of significance levels are reported if they passed the decision rule of .05.

Table 4

List of 70 Items which Differentiated 80 Good and 80 Poor Readers in the Pooled Sample (N = 290)

x^2	Sig. Level	Item	Response	Group
		ROGERS ONE (2 items)		
6.9	.01	Chooses occupation of movie star	Yes	Poor
5.2	.05	Chooses occupation of lawyer	Yes	Good
		ROGERS TWO (1 item)		
2.3 IN-T 4.5	.05	To play games better	Yes	Good
		ROGERS THREE (No significant items)		
		ROGERS FOUR (15 items)		
		C. likes to read novels. He sometimes reads five or six novels in a week.		
14.1	.001	Am I just like her? (9/10)	No	Poor
		E. gets very good marks on all his school work.		
19.2	.001	Am I just like him? (7/8)	No	Poor
		G. is a leader. All the fellows do what he tells them.		
10.5	.005	Am I just like him? (9/10)	No	Poor
8.8	.005	Do I wish to be just like him? (8/9)	No	Poor
		I. always does just what his mother tells him to do.		
4.4	.05	Do I wish to be just like him? (1/2)	Yes	Poor

(Table cont'd on next page)

Table 4 (Cont'd)

X^2	Sig. Level	Item	Response	Group
		J. is the most popular boy in school.		
5.5	.02	Am I just like him? (8/9)	No	Poor
3.8	.05	Do I wish to be just like him? (1/2)	Yes	Poor
		K. has more girl friends than all the other fellows.		
4.8	.05	Do I wish to be just like him? (2/3)	Yes	Poor
		M. doesn't want to mind his father and mother. He knows he is old enough to decide things for himself.		
8.6	.005	Am I just like him? (9/10)	No	Poor
2.3 OUT-T 4.1	.05	Do I wish to be just like him? (9/10)	No	Poor
		N. has more spending money than the other boys.		
5.7	.02	Am I just like him? (9/10)	No	Poor
5.1	.05	Do I wish to be just like him? (7/8)	No	Poor
		O. is the brightest boy in school.		
21.1	.001	Am I just like him? (8/9)	No	Poor
		P. likes to sit by himself and imagine things. He enjoys it more than being with people.		
3.1 PS-G 5.4	.02	Do I wish to be just like him? (9/10)	No	Poor

(Table cont'd on next page)

Table 4 (Cont'd)

X^2	Sig. Level	Item	Response	Group
		Q. fights a good deal with his brother and sister, no matter how hard he tries not to.		
4.1	.05	Am I just like him? (9/10)	No	Poor
		ROGERS FIVE (5 items)		
		Do you like to play games with the other boys and girls?		
5.9	.05	I would rather play games than anything else I know.		Poor
		First choice for companion to visit circus:		
11.1	.001	Father		Poor
8.2	.005	Group of friends		Good
		Second choice for companion to visit circus:		
8.9	.005	Mother		Poor
		Do you want to be a grownup man or woman?		
4.7	.05		Yes	Poor
		Do you have any good friends?		
3.0		Many		Poor
PS-G 6.1	.02			
IN-T 5.1	.02			
		TRYON I (5 items)		
		Do you feel like getting up in the morning?		
4.9	.05	Always		Poor

(Table cont'd on next page)

Table 4 (Cont'd)

X^2	Sig. Level	Item	Response	Group
		Do you have things on your mind so you cannot go to sleep?		
2.6 OUT-B 3.8	.05	Never		Poor
		Do you dream about your brothers and sisters?		
2.7 PS-G 4.0	.05	Never		Good
		Do you get out of breath quickly?		
5.1	.05	Never/Once in a while		Poor
		Do you have pains in your eyes?		
5.3	.05	Never		Good
		TRYON II (20 items)		
		A. is a boy whose teacher likes him very much.		
7.0	.01	Am I just like him? (3/4)	No	Poor
		B. is a boy who usually trusts people.		
2.1 IN-T 3.8	.05	Am I just like him? (2/3)	Yes	Poor
10.0	.005	Do I wish to be just like him? (1/2)	Yes	Poor
		C. is a boy who seems to have a lot of fun.		
3.2 PS-G 4.4	.05	Am I just like him? (1/2)	Yes	Poor

(Table cont'd on next page)

Table 4 (Cont'd)

X^2	Sig. Level	Item	Response	Group
		D. is a boy who is allowed to stay out at night as late as he likes.		
3.7 IN-G 4.3	 .05	Am I just like him? (4/5)	No	Poor
		E. is a boy who gets to go places without asking permission.		
5.0	.05	Do I wish to be just like him? (3/4)	No	Poor
		F. is a boy who has a job after school and on Saturdays. He earns money.		
3.7 OUT-T 5.2 PS-G 5.4	 .05 .02	Do I wish to be just like him? (1/2)	Yes	Poor
		H. is a boy who is careful not to hurt people's feelings.		
5.0	.05	Do I wish to be just like him? (1/2)	Yes	Poor
		M. is a boy who is allowed to go out with a crowd of boys and girls without any grownups along.		
6.1	.02	Am I just like him? (3/4)	No	Poor
		P. is a boy who lets people get the best of him because he is good-natured.		
7.2	.01	Do I wish to be just like him? (3/4)	No	Good

(Table cont'd on next page)

Table 4 (Cont'd)

X^2	Sig. Level	Item	Response	Group
		Q. is a boy who is thought to be queer or different, or not like other boys.		
4.4	.05	Do I wish to be just like him? (3/4)	No	Good
		S. is the best-dressed boy in school.		
4.2	.05	Am I just like him? (3/4)	No	Poor
		T. is a boy who doesn't like arguments or fights. He would rather agree than fight about it.		
7.5	.01	Do I wish to be just like him? (1/2)	Yes	Poor
		U. is a boy who often tries to be just like some person he has read about in a book or seen in a show.		
6.6	.02	Am I just like him? (3/4)	No	Good
14.4	.001	Do I wish to be just like him? (3/4)	No	Good
		V. is a boy whose parents like his friends and are always nice to his friends.		
5.7	.02	Am I just like him? (2/3)	Yes	Good
5.2	.05	Do I wish to be just like him? (2/3)	Yes	Good

(Table cont'd on next page)

Table 4 (Cont'd)

X^2	Sig. Level	Item	Response	Group
		W. is a boy whose parents do not realize that he is growing up; they still treat him like a little child.		
7.4	.01	Do I wish to be just like him? (3/4)	No	Good
		Y. is a boy who stays in the house on Saturdays and after school to help his mother.		
4.2	.05	Am I just like him? (2/3)	Yes	Poor
2.3 IN-T 3.9	.05	Do I wish to be just like him? (2/3)	Yes	Poor
		TRYON III (4 items)		
		If you were 16 years old and could choose, which of the following would you do?		
16.2	.001	Go to school some more		Good
16.6	.001	Get a job and live at home		Poor
		How do you treat "bossy" persons?		
11.8	.001	I don't pay any attention to them		Good
		What do you like to do best after school?		
4.8	.05	Go home and do something by myself		Good
4.1	.05	Go to some friend's house		Poor

(Table cont'd on next page)

Table 4 (Cont'd)

χ^2	Sig. Level	Item	Response	Group
		How do you feel when you speak to someone whom you think you know, and then find out this person is a stranger?		
8.6	.005	I feel terribly silly for a minute or two		Good
5.9	.02	I think it's a good joke on me		Poor
		TRYON IV (3 items)		
		Check the things that scare you		
9.7	.005	Death		Poor
11.9	.001	Earthquakes		Poor
2.7 OUT-T 4.2	.05	Operations		Poor
		TRYON IVa (1 item)		
		Check your wishes		
4.9	.05	I wish my father and mother were not so busy all the time		Poor
		TRYON V (3 items)		
2.7 IN-T 4.4	.05	Do you often grouchy?	Yes	Poor
5.5	.02	Do you ever worry about things you have done that you never told anyone about?	Yes	Poor
5.1	.05	Do you sometimes wish you had never been born?	Yes	Poor

(Table cont'd or next page)

Table 4 (Cont'd)

X^2	Sig. Level	Item	Response	Group
		TRYON VI (11 items)		
		Check the things you dislike about school		
3.3 OUT-T 3.9		Having to recite in class		Poor
5.0	.05	Teachers who are not interested in their pupils		Good
5.4	.02	Being punished for things one does not do		Good
4.6	.05	One's classmates are snobbish and stuck-up		Poor
6.9	.01	Being laughed at when one recites in class		Poor
3.5		Having no chance to choose one's teachers		Good
5.0	.05	School work is too monotonous		Good
4.6	.05	Teachers who use sarcasm or ridicule		Good
4.3	.05	Having someone get a better mark than you		Poor
1.8 IN-T 4.1	 .05	Teachers who criticize one's faults and errors		Good
3.8		Having some of the pupils start a club which they won't let others into		Poor

There are a number of noteworthy features about this group of 70 significant items:

1. Perhaps the most striking result is that, out of a total of 328 items, only 70 were found to discriminate between the extreme reading groups at an acceptable level of confidence. The fact that only 70 items proved usable in the present context does suggest that, as Holmes (1959) has hypothesized, the facets of personality which have to do with reading success are narrower and more specific to the situation than those measured by "adjustment" scales.

2. The most productive tests by far were the Rogers Four and the Tryon II, both of which require ratings of the self and ideal self, that is to say, with the self concept and with personal values. Together these two subtests contributed 50 per cent of the significant items. The Tryon IV subtest, which deals with school dislikes, also figured prominently in the final selection of items. On the other hand, the Tryon I subtest, which contains 35 items dealing with general health and feeling tone, contributed only 5 significant items.

3. An examination of the items which employ 5- or 10-point ratings (Rogers Four and Tryon II subtests) reveals that the dichotomy which makes the item significant occurs, for the most part, at the extreme ends of the scale. A break at 1/2, for example, would indicate an emphatic positive response, while a break at 9/10 would indicate an emphatic negative response. A large number of the items concerned owe their significance to just such an emphatic response, usually on the part of the poor reader. For example, the poor reader is much more certain that he is not a leader than the good reader is of his own powers of leadership. In fact, 28 of the 35 items of this type were answered in this characteristically emphatic way by the poor readers.

Correlation Analyses

All subjects in the POOLED Sample were rescored on the 70 items of the PS scale. When the total scale scores obtained by summing across the 70 items were correlated with the SAT reading score, all Pearson r's were significant at or beyond the .01 level of confidence, as may be seen in Table 5.

Factor Analysis

To determine whether the items, all of which were individually significant for reading, would cluster into meaningful dimensions, a principal components factor analysis of these items was deemed desirable.

For this purpose, a matrix of tetrachoric correlation coefficients was developed by correlating every item with every other item and also with the dichotomized reading score. However, in order to increase reliability, it was deemed advisable to delete 11 personality items which tended to produce low frequencies in the 2 x 2 cells, thus reducing the matrix to 60 x 60.

Seven factors were initially extracted from the 60 x 60 matrix for the POOLED Sample of 290 and rotated by varimax technique to increase interpretability. Items retained for interpretation were those with loadings equal to, or higher than, ± .280.

The above technique produced items having significant loadings on two or more factors. Therefore, before proceeding to the longitudinal validation, some refinement of the scales appeared desirable in order to eliminate overlapping items and to obtain the degree of independence necessary for performing multiple correlation.

A second difficulty arose from the fact that after each overlapping item was assigned to that factor on which it had the highest loading,

Table 5

Correlations between Reading and the PS Personality Scale for the Various Groups

	PS Scale (70 items)
IN-Boys (N = 81)	.548
IN-Girls (N = 79)	.455
OUT-Boys (N = 65)	.455
OUT-Girls (N = 65)	.663
IN-Total (N = 160)	.497
OUT-Total (N = 130)	.563
PS-Boys (N = 146)	.491
PS-Girls (N = 144)	.562
PS-Total (N = 290)	.529

Factors V, VI, and VII were not interpretable and were too short to be reliable. The placement of the items by the above method was verified by examining the loadings on a new factor analysis with a specified rank of four. This four-rank factor analysis also allowed each of the remaining items in Factors V, VI, and VII to be assigned to the most appropriate new scale.

The items composing these four factors, their loadings, the direction of response, and the group characterized by this response are listed below.

Factor I: Social dependency (17 items)				Loading
H is careful not to hurt people's feelings	W[3]	Yes	Poor	.754
M knows he is old enough to make his own decisions	L	No	Poor	.745
M " " " " " " " " " "	W	No	Poor	.744
I does what his mother tells him	W	Yes	Poor	.742
P likes to sit by himself and imagine things	W	No	Poor	.733
B usually trusts people	W	Yes	Poor	.705
C seems to have a lot of fun	L	Yes	Poor	.641
J is the most popular in school	W	Yes	Poor	.624
T would rather agree than fight	W	Yes	Poor	.604
D is allowed to stay out late	L	No	Poor	.571
B usually trusts people	L	Yes	Poor	.494
Q fights his brothers and sisters	L	No	Poor	.490
Y helps his mother after school and Saturdays	W	Yes	Poor	.423
F has a job and earns money	W	Yes	Poor	.353
N has many friends	L	Yes	Poor	.306[4]
Choice of after-school activity: be with friends	-	Yes	Poor	.109
V's parents like his friends	L	Yes	Good	-.412
Reading - Stanford Achievement Test, Paragraph Meaning				.137

Factor I is composed primarily of items descriptive of poor readers. The significance of the items comprising this factor is due not to the large number of good readers who answer in the affirmative, but to the large number of poor readers who answer emphatically in a negative vein (before the items were dichotomized). The poor reader indicates that he is not, and does not wish to be, the kind of boy (or girl) who "does not want to mind his mother and father (because) he knows he is old enough to make his own decisions." On the contrary, the poor reader wishes to do what his mother tells him, and to help her around the house after school and on Saturdays. Among his siblings and peers--and he believes that he has many friends and enjoys being with them--his relationships are marked by a strong desire to trust people, to be popular and not a "loner," and to avoid arguments and fights or hurting people's feelings. Perhaps as a consequence of this agreeable demeanor he "seems to have a lot of fun," though he certainly is not allowed to stay out late. He would like to have a job by means of which he could earn money.

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[3] An 'L' refers to the question "Am I Like him?", while a 'W' refers to the question "Do I Wish to be like him?"

[4] When items with significant loadings (±.280) in the seven-factor analysis were redistributed in the four-factor analysis, a few of the item loadings fell below this criterion.

In brief, this factor suggests that the poor reader is strongly oriented toward people, and is consequently dependent on them, rather than on his inner resources, for pleasure and gratification. This dependency makes him willing to assume a pose of docility and conciliation. Significantly more often than his counterpart, the poor reader tends to feel that he is not yet old enough to make his own decisions, and that his ties with home and family remain firm. In one sense then, this factor is a maturity factor, suggesting that the poor reader has not yet reached the stage of "psychological weaning" from the parents, and as such, it supports Erikson's theory and the present writers' hypothesis that the good reader would show a greater desire for autonomy and independence, while the poor reader would wish to remain dependent on the parents. It also supports Holmes' thesis that differential value systems would be found operating in the two groups, since the cluster of items constituting this factor depicts a high value for felicitous social relationships on the part of the poor reader which is found significantly less often among good readers.

Apparently, social dependency is a syndrome which differentiates between the extremes of the reading distribution, but this relationship is somewhat attenuated by the inclusion of the middle segment, since reading loaded only .137 on Factor I for the ninth grade.

Factor II: Self Concept (14 items)				Loading
E gets good marks on all his school work	L	No	Poor	.784
J is the most popular in school	L	No	Poor	.766
O is the brightest in school	L	No	Poor	.766
G is a leader	L	No	Poor	.687
A's teacher likes him very much	L	No	Poor	.663
S is the best-dressed in school	L	No	Poor	.622
G is a leader	W	No	Poor	.541
N has more spending money	L	No	Poor	.535
C likes to read	L	No	Poor	.475
N has more spending money	W	No	Poor	.422
Feels like getting up in the morning	-	Yes	Poor	.257
Feelings following mistaken identity of stranger	- -	Silly Joke	Good Poor	.254
Pays no attention to "bossy" people	-	Yes	Good	.249
M is allowed to go out with a crowd	L	No	Poor	.227
Reading - Stanford Achievement Test, Paragraph Meaning				.480

Again, this factor describes attitudes and feelings of the poor readers, especially in reference to the school situation. The poor reader states emphatically that he is neither the most popular nor the brightest in school, that he does not like to read, does not get good marks on his school work, and does not believe that his teacher likes him. He reports that he is not, and does not wish to be, a leader, neither has nor wants to have more spending money than the others, and is not the best-dressed student in school.

In brief, this factor suggests that the poor reader is highly conscious of his disability, and that his sensitivity and feelings of inferiority are not confined solely to the academic sphere. Whether or not he is correct in his inferences concerning the adverse opinions of his teachers and immediate peers, it is clear that the poor reader believes in, and accepts at face value, what he believes to be their low estimation of his capabilities. Erikson's suggestion that the child who has failed to meet the crisis of the fourth stage, industry vs. inferiority, will tend to experience ". . . the feeling that (he) will never be any good," seems to be borne out by the present study, at least as far as subjects who have failed to meet the reading challenge are concerned. This finding is in line with those of Bodwin (1957) and Hallock (1958), and supports the writers' hypothesis that poor readers would display strong feelings of inadequacy and inferiority, especially in the school situation.

Not surprisingly, the reading item has its highest loading of .480 on this factor. Apparently, feelings of confidence or inferiority are closely related to power of reading at all points of the reading distribution--at least at the ninth grade level.

Factor III: School dislikes (12 items)				Loading
Dislikes pupils starting exclusive clubs	-	Yes	Poor	.771
Dislikes being laughed at when reciting	-	Yes	Poor	.587
Dislikes snobbish classmates	-	Yes	Poor	.556
Dislikes having to recite in class	-	Yes	Poor	.463
Has things on his mind, can't sleep	-	No	Poor	-.274
E goes places without asking permission	W	No	Poor	-.431
Dislikes being punished for things he did not do	-	Yes	Good	-.557
Dislikes having no chance to choose own teachers	-	Yes	Good	-.631
Dislikes teachers who are not interested in pupils	-	Yes	Good	-.637
Dislikes teachers who use sarcasm and ridicule	-	Yes	Good	-.646
Dislikes monotonous school work	-	Yes	Good	-.653
Dislikes teachers who criticize faults and errors	-	Yes	Good	-.670
Reading - Stanford Achievement Test, Paragraph Meaning				.072

This is a bipolar factor representing two clusters of items which describe features of the school environment disliked by poor and good readers, respectively. In general, the dislikes of the poor reader center around his classmates. He objects to them being snobbish, or starting clubs which he is not allowed to join, and he dislikes being laughed at by them when he recites in class. The good reader's dislikes, by contrast, seem to focus on the monotony of school work, and the perceived shortcomings of his teachers. He appears to be particularly sensitive to unjust punishment and to their criticism, or ridicule. He expects his teachers to be interested in him, and dislikes not having the opportunity to select his own teachers.

When a child reaches adolescence, his parents are gradually replaced, as models and standards for behavior, by the arbitrations of the peer culture. Hence, one might expect to find adolescents reacting strongly to evidence of derision or disdain on the part of their contemporaries. In view of the items projected in Factor III, it must be assumed either that: (a) the good reader experiences these reactions from his classmates much less frequently than the poor reader, or (b) the poor reader, being oriented toward people, is much more sensitive to their behavior toward him. There is also the possibility (as suggested by Factor I) that the good reader, secure in the knowledge that he has passed through the stage of establishing satisfactory peer relationships, can now turn his attention to the learning task, and to the characteristics of the teachers who will help him to succeed in this task. Consequently, his criticisms are focussed upon the quality of the teaching material and upon teachers who undermine his self-respect in the learning situation.

Evidently, this polarization of school dislikes operates only in the extreme groups, since the loading on the reading item for the entire distribution is only .072 for the ninth grade.

Factor IV: Family orientation and anxieties (16 items)				Loading
U tries to be like someone in a book or show	W	No	Good	.701
U " " " " " " " " "	L	No	Good	.645
Y helps his mother after school and Saturdays	L	Yes	Poor	.573
Worries about things he has done	-	Yes	Poor	.509
W's parents treat him like a child	W	No	Good	.508
Has pains in his eyes	-	No	Good	.493
Often feels grouchy	-	Yes	Poor	.465
P is goodnatured, lets people get the best of him	W	No	Good	.448
Wishes parents were not so busy all the time	-	Yes	Poor	.407
Afraid of earthquakes	-	Yes	Poor	.406
If 16, would go to school some more	-	Yes	Good	.353
If 16, would get a job and live at home	-	Yes	Poor	
Circus companion, second choice - mother	-	-	Poor	.253
Dreams about brothers and sisters	-	No	Good	.246
Circus companion, first choice - friends	-	-	Good	.220
father	-	-	Poor	
Wishes to play games better	-	Yes	Good	.194
R wants very much to be grownup	W	Yes	Poor	.073
Reading - Stanford Achievement Test, Paragraph Meaning				.445

This factor appears to have three components. The first two items are concerned with the wish to be like some fictional character in a book or show. The good reader repudiates the notion that he engages, or wishes to engage, in this kind of fantasy. This might seem like an inability to empathize, were it not that the wording of the item ". . . tries to be like . . ." seems to refer to overt behavior. Perhaps the poor reader has a greater tendency to try out on his classmates various roles encountered via mass media, while the good reader is more certain of his own identity.[5] However, any interpretation based on these two items alone must remain tenuous.

The second component reflects the strong family orientation and interest previously remarked in Factor I, with somewhat different emphasis.

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[5] Robert W. White (1956) has documented the college history of "Joseph Kidd," an indifferent student who attempted to compensate for his lack of ability by adopting various social roles, with disastrous consequences.

Here the good reader rejects the idea that he wishes to be treated as a child, nor is he willing to allow his good nature to let people get the best of him. He wants to be treated as the adult he considers himself to be. He wants to make his own decisions. The poor reader seems to be closer to his parents. His first and second choices of companion for a visit to the circus are his father and mother, respectively, rather than friends. He "wishes his father and mother were not so busy all the time," either as a mark of solicitude, or because he would like to receive more of their attention; nor is he averse to having them treat him as a child, i.e., having parents make his decisions for him. Far from rebelling, if he had the choice, he would get a job but continue to live at home.

The third component seems to relate to general anxieties. For instance, the poor reader worries about things he has done, often feels grouchy, is afraid of earthquakes, and has pains in his eyes.

This factor suggests that, in contrast to the good reader, the poor reader leads a more sheltered life, is treated more as a child, has more anxieties, and is possibly a "late maturer," circumstances which might impose a limit on his ability to pursue his search for identity. In short, when the items in this factor are scored in the direction of the good readers it appears to assess desire toward self-decision in contrast to orientation toward family control with the attending anxieties for "bucking" it. This factor is important, for it has a loading of .445 on reading.

In all, the four factors account for 39 per cent of the matrix variance and 45 per cent of the variance on the reading item. The latter figure is much higher than the usual contributions of personality factors to the variance of the reading criterion. In the analysis of power of reading at the college level, Holmes (1954) found no personality variables, out of 14 scales used, which could make a significant contribution to variance in the criterion. At the high school level, Holmes and Singer (1961) found two variables, Study Planning and Deliberation, which contributed nine-tenths of one per cent, and School Adjustment and Morale which contributed four-tenths of one per cent. However, it must be borne in mind that the items included in the factor analysis are probably highly related to the intellectual and verbal skills requisite for reading comprehension. Items such as "O is the brightest boy in school. Am I like him?" are obviously tapping both intellectual ability and self concept, but it would contribute nothing to our understanding of the dynamics of reading to exclude them on that ground. As Holmes has pointed out many times, verbal and cognitive skills are intimately related to the underlying value systems, and it is the associated complex of skills and attitudes which is brought to bear in the reading act.

The substantial proportion of variance in reading accounted for by the four factors composed of personality items also lends support to the initial assumption that selection of items against a reading criterion would prove superior to the use of standardized clinical personality scales.

As pointed out previously, many of the items in the inventory were composed of two parts, namely: (a) "Am I like . . . ," and (b) "Do I wish to be like . . . ." As it happened, the item analysis often selected one-half of an item as a significant discriminator, but the other half fell short of reaching the cut-off level. Nevertheless, as a rule it tended to differentiate the good from the poor readers in the same direction as its selected partner. In order to hold the original format of such items constant, of course, both parts needed to be included in the longitudinal and temporal validation inventory. However, in order not to contaminate the factors so carefully "purified," the "almost significant" counterparts of the significant items were collected together into the following miscellaneous scale.

Miscellaneous Scale (38 items)

Choice of occupation (forced choice from five alternatives)[6]

astronaut, engineer			Good
artist, author			Good
doctor, pilot			Good
lawyer			Good
lawyer, scientist			Good
teacher			Good
lawyer			Good
Dislikes having someone get a better mark	-	Yes	Good
Gets out of breath quickly	-	Yes	Good
S would rather read than do anything else	W	Yes	Good
G gets good marks on all his school work	W	Yes	Good
D always obeys his/her parents	L	No	Good
J is the brightest student in school	W	No	Good
Y would rather play games than anything else	W	No	Good
R wants very much to be grownup	L	No	Good
B would rather sit alone and think about things	L	Yes	Good
N has many good friends	W	Yes	Good
Q has more friends of the opposite sex than anyone else	L	No	Good
O is liked by the teachers	W	Yes	Good
K fights a good deal with his brothers and sisters	W	Yes	Good
W is careful not to hurt people's feelings	L	Yes	Good
C has a job outside school	L	Yes	Good
I is allowed to stay out late	W	Yes	Good
P seems to have a lot of fun	W	Yes	Good
Y is the best-dressed student in school	W	Average	Good
F is allowed to go places without asking permission	L	No	Good
N is goodnatured and is sometimes taken advantage of by other people	L	Yes	Good
R has parents who are always nice to their children's friends	W	Yes	Good
V is allowed to go out with a crowd, without any grownups along	W	Yes	Good
Z would rather agree than get into an argument or fight	L	No	Good
I is thought to be different from the others	L	No	Good
I " " " " " " " "	W	No	Good
L has parents who do not realize he is growing up	L	No	Good

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[6] Alternate options may be found in items 1-7 of the Self-Interest Inventory (Appendix).

Afraid of accidents	L	No	Good
Afraid of operations	L	No	Good
Afraid of death	L	No	Good
J spends a lot of time at the library	L	Yes	Good
" " " " " " " " "	W	Yes	Good

Part II

Genetic Longitudinal-Validation Study, 1933-1935

In Part I of this chapter it was reported that a reciprocal cross-validation (on the 9th Grade, 1935, IN Group to OUT Group, and vice versa) yielded correlations between reading and sets of 33 and 34 personality items of .53 and .43, respectively. Using a Fisher's Z-transformation, an average *r* of .48 was produced. In view of this substantial correlation, the IN and OUT Samples were pooled (N = 290), and a third item analysis on the 328 original items was performed. From this analysis a five-scale Reading-Personality Inventory was finally constructed. A new key was devised so that *all items were rescored "1" if answered in the direction of the good readers, and "0" if answered in the direction of the poor readers*. This made it necessary to reverse the names of the factors. Hence, the final version of the Reading-Personality Inventory contained the following scales:

Factor I	Social Independence	17 items
Factor II	Self-Concept	14 items
Factor III	School Dislikes	12 items
Factor IV	Self-Decision[7]	16 items
		69 items[8]
Scale V	Miscellaneous (filler items)	38 items
		97 items

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[7] Self-Decision is a "catch-all" term to include freedom from family-made decisions for self and freedom from the anxiety generated in making self-decisions.

[8] One item was thought to border on the invasion of privacy and, therefore, was deleted from the original 70 items.

In a longitudinal study the researcher is always confronted with students who for one reason or another neglect to take one or more of the tests in the battery administered over several years. In the present study, the missing data phenomenon necessitated a reduction of our sample to an N of 120 if the same students were to be compared over the three years: 1933, 1934, and 1935.

Table 6 presents the means and standard deviations earned by the same 120 students when they were in the 7th, 8th, and 9th Grades.

Table 6

Means and Standard Deviations Earned by
the Same 120 Students in Grades 7, 8, and 9

Variables	Grades (N = 120)					
	7th (1933)		8th (1934)		9th (1935)	
	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ
Reading	89.63	13.60	97.68	11.06	101.30	11.46
I. Social Independence	5.76	2.42	8.52	2.94	9.55	3.73
II. Self-Concept	7.23	2.80	8.01	3.06	9.01	3.23
III. School Dislikes	4.82	1.70	5.57	1.65	5.95	1.70
IV. Self-Decision	7.88	1.84	12.50	1.89	12.38	2.58
Total "Pure" Factors (I-IV)	25.62	5.31	34.60	5.19	36.88	6.65

Table 7 shows the correlations between the new scales and the criterion, Reading Achievement, for the three grades.

Table 7

Correlations of the New Reading-Personality Scales with Reading Achievement for the Same Students on the Same Tests at Three Grade Levels

Reading Achievement with	Grades (N = 120)		
	7th (1933) r_{cx}	8th (1934) r_{cx}	9th (1935) r_{cx}
I. Social Independence	.219*	.211*	.219*
II. Self-Concept	.256*	.086	.388*
III. School Dislikes	.136	.077	.077
IV. Self-Decision	.209*	.257*	.345*
Total "Pure" Factors (I-IV)	.322*	.288*	.465*

*Significant at or beyond the .05 level.

Comparing the correlations for the separate scales with those for the Total "Pure" Factors Scale (I-IV) in Table 7, it is interesting to note that the latter yields the highest _r_ for each year--as would be expected. Further, the correlation of the Total Scale with reading for Grade 9 yields an _r_ of .465, as opposed to the parallel _r_'s of .322 and .288 obtained in the 7th and 8th Grades, respectively. This drop is explained _not_ so much by the fact that the 9th Grade _r_ of .465 is slightly spurious (for it compares favorably with the average _r_ of .480 derived from the reciprocal cross-validation of the IN and OUT Samples), but mainly because the _same_ children are indeed somewhat _different_ children in the 7th and 8th Grades than they are in the 9th, where the original item analyses were made (see Table 8). The further removed one gets from the original conditions for selecting the items and establishing the original _r_'s, the lower the relationships are likely to be. Table 8 reports the constancy correlations of the criterion with the Self-Interest Inventory[9] Scales from year to year. Reading Achievement and Independence appear to be the most stable. The greatest changes from the 7th to the 9th Grades seem to have taken place in the Self-Concepts of these pupils as measured by this Scale. However, the constancy correlations from the 7th to 8th and from 8th to 9th Grades are relatively low, indicating that a general differential development was taking place within this adolescent sample over the three-year period. It should be noted that the developmental correlations are not reliability indices and should not be taken as such.

Table 8

Year-to-Year Self-Correlations of the Scales
Showing Developmental Relationships in the THEN Sample

	Grades	
	7th (1933) ---- 8th (1934) r_{7-8}	---- 9th (1935) r_{8-9}
C. Reading Achievement	.78*	.85*
I. Social Independence	.60*	.71*
II. Self-Concept	.06	.09
III. School Dislikes	.16	.12
IV. Self-Decision	.33*	.46*
T. Total "Pure" Factors (I-IV)	.31*	.42*

*Significant at or better than the .05 level.

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[9] Self-Interest Inventory is the official name used to include the value-saturated Personality Factors I-IV.

The pattern of correlations, in Table 7, suggests that each factor, except III, "School Dislikes," makes a substantial contribution to the over-all relationship between reading and the Self-Interest Inventory. Since the inter-scale correlations are relatively low, it appears that the over-all Inventory is effectively measuring the combined impact of the three major factors. A judgmental analysis by the present writers of the items in Factor Scales I, II, and IV suggests that the junior high school students who hold high values toward their (a) Social Independence, i.e., freedom from social dependency, (b) Positive Self-Concept, and (c) Self-Decision, i.e., need to make their own decisions, will be better readers than those who place a low value on these attributes. It is evident that these three value systems are in one sense factorially different, yet in another sense they are surely only different facets of a single basic attitude, need, desire, and active role on the part of the student who is seeking to become a confident and competent individual able to make his own decisions now, and looking forward to the time when he can make his own way in the world. To accomplish these objectives it is quite apparent to him that, realistically, he must have an education of quality, and so he places a high value on the acquisition of a quality education. These, then, are the values delineated in this study as bearing a positive relationship to reading achievement in the 7th, 8th, and 9th Grades in the 1930's. The question remains, "Are these same values (as operationally measured in the Inventory Scales) related to reading success in the same way in the same grades today, i.e., in 1966.

Part III

Current Cross-Sectional Longitudinal Validation Study, 1966

In order to determine whether the value-saturated personality scales, discovered to be related to reading achievement at the junior high school level in the 1930's, were constant over time in their relationship to reading achievement, a suitable replication at a later date was needed. Hence, in 1966, samples of 7th, 8th, and 9th graders were drawn from a similar school population. Except for a few orientals, the student populations of the then and now schools were composed almost entirely of Caucasians of comparable socioeconomic levels, living in similar geographical locations of the San Francisco East Bay Area.

Table 9 compares the means of the reading and personality scales for two samples taken thirty years apart. Table 10 compares the standard deviations for the same groups.

Reading Achievement

A visual inspection of the means and standard deviations (Tables 9 and 10) for the criterion, Reading Achievement, reveals sets of comparable statistics. This visual impression is substantiated, for a Scheffé post hoc multiple contrast (see Hays, 1965) showed conclusively that at the 5 per cent level of confidence there are, grade-for-grade, no significant differences in the then and now means for Reading Achievement. Apparently, the 7th, 8th, and 9th Grade youngsters of comparable socioeconomic level read just as well now as they did then, when measured on the Stanford Achievement Test, Paragraph Meaning, 1933 Edition.

Further analysis by Scheffé's technique indicated, however, that for 1966, where independent groups were available, significant reading gains were made by the 9th over the 8th, and the 8th over the 7th Grades.

Table 9

Comparison of Means of 7th, 8th, and 9th Grades
Then (N = 120) and Now (N's = 143, 158, 112)

Variables	Grades 7th $\bar{X}$	Grades 8th $\bar{X}$	Grades 9th $\bar{X}$
Reading Achievement			
1933, '34, '35	89.63	97.68	101.30
1966	90.77	95.37	102.69
I. Social Independence			
1933, '34, '35	5.76	8.52	9.55
1966	9.79	9.63	10.50
II. Self-Concept			
1933, '34, '35	7.23	8.01	9.01
1966	8.82	8.58	9.16
III. School Dislikes			
1933, '34, '35	4.82	5.57	5.95
1966	5.71	5.82	6.09
IV. Self-Decision			
1933, '34, '35	7.88	12.50	12.38
1966	10.65	10.68	11.59
Total "Pure" Factors (I-IV)			
1933, '34, '35	25.62	34.60	36.88
1966	34.97	34.70	37.34

Table 10

Comparison of Standard Deviations of 7th, 8th, and 9th Grades Then (N=120) and Now (N's=143, 158, 112)

Variables	Grades		
	7th S.D.	8th S.D.	9th S.D.
Reading Achievement			
1933, '34, '35[a]	13.60	11.06	11.46
1966[b]	15.79	15.49	12.63
I. Social Independence			
1933, '34, '35	2.42	2.94	3.73
1966	2.50	2.59	2.24
II. Self-Concept			
1933, '34, '35	2.80	3.06	3.23
1966	2.86	2.63	2.77
III. School Dislikes			
1933, '34, '35	1.70	1.65	1.70
1966	1.32	1.55	1.60
IV. Self-Decision			
1933, '34, '35	1.84	1.89	2.58
1966	2.54	2.79	2.37
Total "Pure" Factors (I-IV)			
1933, '34, '35	5.31	5.19	6.65
1966	5.29	5.30	5.26

[a] N's for the 1933, '34, and '35 samples were composed of the same 120 students.

[b] N's for the 1966 7th, 8th, and 9th Grade samples were composed of 143, 158, 112 different students.

I. Social Independence ($\alpha = .05$)

The grade-for-grade then and now means for Factor I, Social Independence, were significantly different according to Scheffé's method of analysis. Inspection will show that in every grade the now sample earned a higher mean than the parallel then sample. Apparently, as a whole, the 1966 groups are consistently more independent in social matters than junior high school students of their parents' generation. For the 1966 samples, Scheffé's post hoc multiple contrast indicates that there was no significant gain from the 7th to the 8th Grades, but a significant gain from the 8th to the 9th Grades on the Independence Scale.

II. Self-Concept ($\alpha = .05$)

When Scheffé's method was applied grade-by-grade to the then and now means for Factor II, Self-Concept, the results indicated that only in the 7th Grade was there a significant difference. Further, the 1966 samples showed no significant differences in the mean gains (or losses) from the 7th to the 8th to the 9th Grades. Apparently, the 1933 7th Grade mean is the only one in this set of six which does not conform to the general trend. As in Factor I, this suggests an earlier maturation in the now sample.

III. School Dislikes ($\alpha = .05$)

As in the above factor, the 7th Grade of 1933 seemed to be out of line with the others. For Scheffé's technique showed that there was no significant difference between the 1966 means, and also that there were no significant differences in the means of the 8th or 9th Grades in the parallel then and now samples.

IV. Self-Decision ($\alpha = .05$)

Here Scheffé's contrasts indicated that all grade-by-grade then and now means are significantly different. For the former group, the period of greatest growth is between the 7th and 8th Grades. For the latter, this growth, for the most part, seems to have taken place already by the 7th Grade. However, no pattern is apparent in the two groups, since, by the 9th Grade the then sample is significantly ahead of the now sample in Self-Decision.

Total "Pure" Factors (I-IV) ($\alpha = .05$)

A Scheffé post hoc multiple contrast for the Total Scale indicated no significant difference in the means of the 7th to the 8th, but a significant difference from the 8th to the 9th Grades in 1966. Likewise, there was no significant difference in the grade-by-grade comparisons for the then and now means in the 8th and 9th Grades. Only Grade 7, 1933, seemed to be out of line. So far as can be ascertained from these tests, the 1933 7th Grade youngsters were significantly more immature than all other groups, and, interestingly, their reading achievement means were the lowest also. Apparently, if we hazard a generalization from these samples, today's 7th Grade adolescents are at least one year ahead in the growth of personality characteristics measured by the above scales, but there is no significant difference in the two groups by the time they reach the 9th Grade.

Relation of Reading to Self-Interest Inventory

Table 11 presents r's derived from correlating "pure" factor scores of the Self-Interest Inventory with the Reading Achievement score earned by the then and now samples.

Table 11

Comparison of Correlations for Personal-Values Inventory Scales and Reading for 7th, 8th, and 9th Grades

Reading and	Grades 7th r_{cx}	 8th r_{cx}	 9th r_{cx}
I. Social Independence			
1933, '34, '35[a]	.219*	.211*	.219*
1966[b]	.062	.024	.238*
II. Self-Concept			
1933, '34, '35	.256*	.086	.388*
1966	.169*	.161*	.188*
III. School Dislikes			
1933, '34, '35	.136	.077	.077
1966	.095	.003	.059
IV. Self-Decision			
1933, '34, '35	.209*	.257*	.345*
1966	.308*	.427*	.221*
Total "Pure" Factors (I-IV)			
1933, '34, '35	.322*	.288*	.465*
1966	.245*	.317*	.318*

*Significantly different from zero ($\alpha = .05$).

[a] 1933, 1934, 1935: N = 120.

[b] 1966: $N_7 = 143$, $N_8 = 158$, $N_9 = 112$.

Inspection of the correlations in Table 11 will show that 21 of the 30 r's are significantly different from zero ($\alpha = .05$). The most striking aspect of the table, however, is the remarkably high and consistent correlations for the Total (I-IV) Inventory over the three years for both the then and now groups. Here, for the first time, is evidence that a certain set of personal values is consistently related to the achievement of reading success in the junior high school grades--within the limits and conditions of the two populations, sampled over a thirty-year span. This finding corroborated on a large scale study using a strictly random sample from the 7th, 8th, and 9th Grades at all socioeconomic levels, would indeed be a real breakthrough in the field of reading.

The second striking feature of Table 11 is the consistency and strength of the relationships exhibited between Factor IV, Self-Decision, and Reading Achievement in the then and now samples over the three grades. This scale, more than any of the others, appears to assess willingness to face up to the reality needs for self-fulfillment. The hard fact is that, to strive to fulfill one's self-image as a maturing person, one must strive to be less dependent on one's immediate family for direction, for companionship, and for protection from both the real and fancied dangers and anxieties of one's external and internal worlds. On the positive side, it assesses the degree to which a young person perceives his parents as developing a basic trust in his ability to make decisions for himself, such as choosing his own friends, deciding on the nature and extent of his own educational goals, and acquiring the ability to deal with anxieties arising from the decision not to be a "mother's helper" in order to pursue his own interests and fulfill his own needs.

The third most consistently positive factor is the scale assessing self-concept. All but one of these r's are significant beyond the .05

level. Low scores on this scale reveal that a person tends to perceive himself as insignificant and ill-equipped for leadership in either social or academic competition. A high score, on the other hand, does not mean that the person has feelings of superiority or, in fact, considers himself to be the most outstanding individual in his school; it only means that he does not profess deep-seated feelings of inferiority. Although the scoring is dichotomized for each item, in taking the test a student has a 5-point scale on which to record his answers. The poor reader tended to concentrate his responses in the lowest category, while the best and average readers' responses were spread out more or less evenly over the other four categories. Thus the scale tends to assess the poor vs. the average, good, and best readers when used in its present context.

Factor I, Social Independence, displays a consistent and educationally important set of correlations for the 7th, 8th, and 9th Grades of the then sample and for the 9th of the now group. A low score on this scale means the individual wishes to be and professes to be considerate of other people in his actions and, in return, is willing to trust them in their actions toward him. On the other hand, he neither professes nor wishes to be old enough to make his own decisions. In short, he wishes to be, and considers himself to be, rather completely dependent upon others. Thus, a low score would tend to indicate extreme social dependency.

Finally, Factor III, School Dislikes, is consistently unrelated to Reading Achievement.

Multiple Correlation

A step-wise multiple correlation, using the scales of the Self-Interest Inventory, produced the results tabulated in Table 12 for each of the years in the then and now samples. To facilitate comparison, the multiple

R's derived from the best weighting of the subtests are presented with the r's obtained by correlating the sum of the number of correct raw items scored (or simple sum of the raw scale scores for the total) with Reading Achievement. Perusal of Table 12 reveals that the adjusted multiple R's are sometimes higher and sometimes lower than the parallel zero-order r's. The second interesting aspect of the tabled entries, however, is the beta weights given to the three factors in contributing to the various multiple R's.

Theoretically, one would like an estimate of just how much of the variance in Reading Achievement at the junior high school level this value-saturated Self-Interest Inventory accounted for under the then and now conditions. Since both chi-square and Z-tests show that there are no significant differences in the r's in the grade-by-grade then and now samples or between the 7th, 8th, and 9th Grades within each condition for the Total Self-Interest Inventory and Reading Achievement, they may all be averaged by Fisher's Z-transformation. When this is done, the averaging procedure yields a mean r of .36, and the best estimate is that the value-saturated personality scales assessed in this Inventory could, on the average, account for approximately 13 per cent of the variance in Reading Achievement in the 7th, 8th, and 9th Grades. In the field of personality and reading research, 13 per cent is a substantial contribution, especially when it has shown itself to be consistent over the entire range of the junior high school and also in two samples separated by a period of over thirty years.

Socioeconomic Status

Socioeconomic status scores were available for the families of the 7th, 8th, and 9th Grade children in the then sample. Hence, it was

Table 12

Comparison of Multiple $\bar{R}$'s, Derived from a Best Weighting of the Subscales of the Inventory for Predicting Reading Achievement, with Zero-order r's Derived by Summing Raw Scores of Subscales of the Inventory and Correlating the Total with Reading Achievement

Sample	$\beta \cdot r$	$\beta \cdot r$	$\beta \cdot r$	Comparable correlations	
				Unadjusted	Adjusted
7th Grade					
1933 $\bar{R}_{C\cdot II,\ I,\ IV}$ =	(.21)(.26) +	(.16)(.22) +	(.12)(.21) =	.337[a]	.302
1933 $r_{C\cdot(I-IV)}$				.322	.322
1966 $\bar{R}_{C\cdot IV,\ II,\ I}$ =	(.31)(.31) +	(.17)(.17) +	(-.02)(.06) =	.350	.322
1966 $r_{C\cdot(I-IV)}$				.245	.245
8th Grade					
1934 $\bar{R}_{C\cdot IV,\ I,\ II}$ =	(.23)(.26) +	(.19)(.21) +	(.04)(.09) =	.324	.286
1934 $r_{C\cdot(I-IV)}$				.288	.288
1966 $\bar{R}_{C\cdot IV,\ II,\ I}$ =	(.44)(.43) +	(.19)(.16) +	(-.05)(.02) =	.464	.447
1966 $r_{C\cdot(I-IV)}$				.317	.317
9th Grade					
1935 $\bar{R}_{C\cdot II,\ IV,\ I}$ =	(.36)(.39) +	(.33)(.35) +	(.04)(.22) =	.512	.493
1935 $r_{C\cdot(I-IV)}$				.465	.465
1966 $\bar{R}_{C\cdot I,\ IV,\ II}$ =	(.17)(.24) +	(.20)(.22) +	(.18)(.19) =	.343	.305
1966 $r_{C\cdot(I-IV)}$				.318	.318

[a] I. Social Independence, II. Self-Concept, IV. Self-Decision, (I-IV). Total of "Pure" Factors (including III. School Dislikes).

possible to compare the magnitude of the correlations of Reading Achievement not only with the Total (I-IV) Inventory Score, but also with the socioeconomic status of the family. Table 13 presents these data.

Reference to Table 13 shows that at each grade level the Total (I-IV) Inventory Score correlated higher with Reading Achievement than did the socioeconomic status of the family.

Table 13

Comparative Correlations between Reading and
(a) Total (I-IV) Inventory and (b) Socioeconomic Status

Variables	THEN Sample	r_{cx}
	7th (1933)	
Total (I-IV) Inventory		.322
Socioeconomic Status		-.170*
	8th (1934)	
Total (I-IV) Inventory		.288
Socioeconomic Status		-.277*
	9th (1935)	
Total (I-IV) Inventory		.465
Socioeconomic Status		-.240*

*The correlation is negative simply because the socioeconomic scale weights the occupations in an inverse order:

I & II. Professionals, proprietors, managers with some college education,
III. Small shopkeepers, clerks, salespersons, skilled workers of high educational status,
IV. Skilled manual workers,
V. Unskilled workers with minimal education.

Obviously a child's value system--his attitudes toward self-image, freedom from family and social dependency, and the making of decisions--are intimately tied up with the attitudes and behavior he observes and reacts to in his family, and these, of course, are dependent on the socioeconomic status of the family. However, the relationship need not be large in all cases, for there are many other individuals and institutions which are also *actively* engaged in trying to mold the child--the peer culture, the school, the church, and advertising campaigns via mass media, to name only a few. Beyond each child's genetically determined tendencies and the influence stemming from his family's social and economic position, there are these other strong, persuasive elements in the child's life. The degree to which each is successful reinforces or diminishes the impact of family pressures on the child. Finally, the evidence from the present study indicates that the composite value-system, no matter how or from what sources it is derived, is somewhat more important in accounting for achievement in reading in junior high school children than the family's socioeconomic status *per se*. It must be held in mind, however, that the present samples are restricted in range as far as socioeconomic status is concerned. Under the condition where the full range of the socioeconomic status was present, undoubtedly the influence of socioeconomic factors would be increased; but, under such conditions the range in value-systems might also be greater, in which case the relative picture found here would remain constant.

CHAPTER V

SUMMARY AND CONCLUSIONS

The Dual Nature of the Theoretical Frame of Reference

Reading is a highly complex skill. The ease and fluency with which the average adult reads printed material and comprehends its meaning belies the fact that this virtuoso performance is reached only after years spent in acquiring and perfecting many different kinds of skills. To cope with the varied tasks that confront him, the reader must constantly be compounding and recompounding these skills in varying proportion into an appropriate working system. Holmes (1954) and his colleagues (Holmes and Singer, 1961; Davis, 1963; Kling, 1964; and Singer, 1960) have demonstrated the extent and variety of the many skills which make up the reading level of different subgroups from primary, elementary, junior high, high school, and college populations. While the Substrata-Factor Theory of Reading hypothesizes that these many different skills are mobilized through the action of deep-seated value systems, so far very little solid evidence has materialized to support the hypothesis. The present study is concerned with this problem. Value-systems, of course, must be the very foundations of personality, if personality is defined in its broadest sense, i.e., the sum of the distinctive individual qualities of a person.

Historically speaking, investigation into the relationship between reading and personality received its initial impetus from the psychological clinic. Spurred on by the obvious emotional handicaps of many of their disabled readers, Blanchard (1928) and Ladd (1933) pioneered some of the earliest studies on the connection between these phenomena. During the forty years that have intervened since these early studies, a steady flow of research on this topic has issued from the clinic, the classroom, and the laboratory. In spite of the fact that this field has proved to be notoriously "stony ground," repeatedly yielding negative or inconclusive results, the flow has gained momentum, rather than diminished. For the most part, however, the attempts to show a relationship have consisted of "one-shot" studies, in which specific personality scales are correlated with reading achievement, and the low correlations are taken as evidence of a negligible relationship between reading and personality or adjustment in general. What is demonstrated, of course, is the absence of relationship between reading and the particular adjustment scales used. Such findings do not exclude the possibility that many other aspects of personality, for which no scales exist, may be highly and consistently related to reading. "Personality" and "adjustment" are, after all, very broad terms, and one cannot assume _a priori_ that those aspects of personality which have most bearing on academic achievement will be the ones of most interest to the clinician. There is, in fact, a good deal of evidence to indicate that just the opposite is true. A major phase of the present study was devoted to an attempt to build new scales which would have a more specific and direct relationship to reading ability, and which would not be primarily oriented to what the clinician thinks of as maladjustment, _per se_.

In order to provide a complementary theoretical frame of reference that would act as a guideline for the construction of such reading-personality scales, as first hypothesized by Holmes (1954) and by Athey (1965) in her doctoral dissertation,[1] the writers searched for a _personality theory_ which would lend itself to the derivation of appropriate specific hypotheses related to reading. Erikson's (1959) theory of the development of the healthy personality was selected because his concept of stages and their attendant crises, especially the stage of "industry vs. inferiority," seemed to be particularly appropriate for purposes of illustrating the dynamic interplay between the developing personality and emerging intellectual skills, as spelled out in Holmes' "gradient shift" hypothesis (Chapter I). Specifically, it was hypothesized that, in contrast to poor readers, good readers would exhibit greater self-esteem, independence, realism, mastery of the environment, and freedom from anxiety (see p. 14).

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[1] The dissertation, which covers the 9th Grade in the 1935 sample, is drawn upon freely in the present report. The present study, in fact, is a logical extension of the initial breakthrough evidenced in Dr. Athey's dissertation. The idea here was to refine her analysis and then to see whether or not the essence of her findings could be replicated over time (J.H.).

Scope of the Present Study

The present study encompassed three phases. The first phase was devoted to the construction of new scales composed of personality items which significantly differentiated good and poor readers at the 9th Grade level in 1935 (Chapter IV, Part I). The second phase consisted of a longitudinal application of the newly constructed scales to the same sample of students when they were in the 7th and 8th Grades in 1933 and 1934 (Chapter IV, Part II). The third phase comprised a further replication on a current sample of 7th, 8th, and 9th Grade students in 1966 (Chapter IV, Part III).

First Phase: Construction of Scales

Selection and two-way cross-validation of personality items which discriminated between good and poor readers at an acceptable level of confidence was based on two 9th Grade samples (1935). In view of the substantial correlations obtained in the two cross-validations, the samples were pooled (N = 290), and a third item analysis on the 328 original items yielded a 70-item reading-personality scale (Chapter IV, Part I). The 70 items were submitted to a principal components factor analysis to yield seven factors which were subsequently purified to form four relatively homogeneous and independent scales without changing the basic character of those original factors on which reading Achievement had high loadings (p. 59 seq.). The final four factors were identified as: I. Social Independence, II. Self-Concept, III. School Dislikes, and IV. Self-Decision. The last factor included some items that assessed freedom from anxiety. The results obtained in this first phase of the study afforded considerable support for the initial hypothesis that substantial and stable reading-personality relationships would be revealed if and when appropriate personality scales could be constructed.

Second Phase: Longitudinal Validation

In the second phase of the study, the purified scales constructed from data obtained at the 9th Grade level, were correlated with reading achievement for the *same* sample of children when they were in the 7th and 8th Grades. Again, the scales were found to have fairly substantial relationships with the reading criterion. While the correlations may not appear high in comparison to those obtained when reading is related to linguistic skills, they represent a considerable improvement over the negligible correlations obtained when reading is related to personality and adjustment scales in general. From an examination of Tables 6 and 7 (pp. 71-72), three features stand out. First, a comparison of the *means* indicated that growth and development in all areas does, in fact, take place. Second, the *correlations* between reading achievement and the individual and composite personality scales *tend* to remain constant, even though the *same* pupils constituted the longitudinal sample in all three grades. This suggests, in keeping with Erikson's (1959) developmental hypothesis of the healthy personality and Holmes' (1959) mobilizer and gradient-shift hypotheses, that the constancy of the reading-to-personality relation is perhaps dependent upon a mutual relationship stemming from parallel changes or growth in both reading and personality. The fact that the Inventory Scales themselves show relatively low constancy correlations from year to year supports this conclusion (see Table 8, p. 73). Third, the factor identified as School Dislikes shows a negligible relationship at all three grade levels. Yet, this factor is composed entirely of items which significantly differentiated good and poor readers, and these items clustered to form a clear bipolar trait in the factor analysis. This suggests that there are distinct personality characteristics which distinguish between very good and very poor readers, but fail to correlate significantly when the total sample is used because they simply do not apply in the middle portion of the two distributions, i.e., reading and School Dislikes.

While all factors (with the exception of School Dislikes) contribute to the over-all relationship, the highest correlations are, as one would expect, between the total personality scale and reading achievement in the 7th, 8th, and 9th Grades.

Third Phase: THEN and NOW Replication

The third phase of the study consisted of further validation of the diagnostic efficacy of the personality scales for reading by replicating the then study now in 1966 on cross-sectional samples of 7th, 8th, and 9th Grade students of comparable socioeconomic and racial composition. For the most part, the correlations are comparable with those obtained in the 1930's. The following table, Table 14, reproduces the tabulations presented in Table 11, page 80, and compares the correlations between the personality scales (Social Independence, Self-Concept, School Dislikes, Self-Decision)

Table 14

Comparison of Correlations for Personal-Values Inventory Scales and Reading for 7th, 8th, and 9th Grades

Reading and	Grades		
	7th r_{cx}	8th r_{cx}	9th r_{cx}
I. Social Independence			
1933, '34, '35[a]	.219*	.211*	.219*
1966[b]	.062	.024	.238*
II. Self-Concept			
1933, '34, '35	.256*	.086	.388*
1966	.169*	.161*	.188*
III. School Dislikes			
1933, '34, '35	.136	.077	.077
1966	.095	.003	.059
IV. Self-Decision			
1933, '34, '35	.209*	.257*	.345*
1966	.308*	.427*	.221*
Total "Pure" Factors (I-VI)			
1933, '34, '35	.322*	.288*	.465*
1966	.245*	.317*	.318*

*Significantly different from zero ($\alpha = .05$)

[a] 1933, 1934, and 1935: N = 120.

[b] 1966: $N_7 = 143$, $N_8 = 158$, $N_9 = 112$.

and Reading Achievement in the then and now samples for the 7th, 8th, and 9th Grades. Once again, School Dislikes shows low correlations for all three grade levels. The factor, Self-Decision and Freedom from Anxieties, assumes more importance than any of the other factors. In fact, its correlations with reading are almost as high as are those of the total scale.

Since there were no significant differences among the r's for the Total (I-IV) Scale and Reading Achievement (Tables 11 and 14, pp. 80 and 92), a Fisher Z-transformation was used to find the average correlation. The averaging procedure yields a mean r of .36, and the best estimate is that these value-saturated personality scales together account for approximately 13 per cent of the variance of reading achievement in the 7th, 8th, and 9th Grades. Found as a stable relationship, this constitutes a substantial contribution in comparison to the usual findings in this area.

Finally, socioeconomic status seems to be less important than personal values and attitudes in determining the adolescent's degree of failure or success in reading. His personal values, of course, are shaped by many influences, and the family's way of life (p. 86) is only one of these. This statement may be even more true today than it was thirty years ago, but unfortunately, it was not possible to obtain socioeconomic data on the current samples. It should be remembered, however, that the composition of the then samples restricted the socioeconomic range and, therefore, these results are somewhat at variance with those cited in Chandler's (1966) excellent article.

Future Research in This Area

The present study has clearly demonstrated that, by isolating and cross-validating only those personality items related to reading, it is possible to construct new personality scales which have a consistent and significant bearing on reading success. Moreover, the characteristics measured by these scales are those which were hypothesized from reading and personality theory, if one assumes that reading is a "developmental task" in western culture. The relative importance of each characteristic at each age level and for different groups is a matter for further research. Especially at kindergarten and Grades 1 to 3, when reading assumes tremendous cultural significance, and the relevant personality characteristics are undergoing rapid transformation, the relationships should provide interesting insights into the mutual development and impact of the emotional overlay and language skills. There is no reason to suppose that the factors involved in this study exhaust the total realm of values which may be related to reading. The hope is that the use of the double cross-validation technique coupled with longitudinal and cross-sectional replications in a then and now experimental design have demonstrated a satisfactory way of mining low grade ore. The "pay-off" has proven to be substantial, and the present writers submit that it opens possibilities for new and rewarding studies at other levels in this challenging field of inquiry.

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APPENDIX

SELF-INTEREST INVENTORY

INTRODUCTION: This is a test in which there are no wrong answers. It is a test about you, your interests, your feelings, and the things you value most or least. The first section of the test concerns ways of earning a living, or what you might like to be.

From each of the following lists of **five** occupations, choose the one you would like most to be and make a heavy mark on your answer sheet under the number of your choice. If there are some lists that do not include your preference, make a choice anyway. One from each list must be marked.

1\.
1. Airline Hostess
2. Astronaut
3. Business Executive
4. Engineer
5. Inventor

2\.
1. Artist
2. Author
3. Hair Stylist
4. Model
5. Movie Star

3\.
1. Clerk
2. Detective
3. Doctor
4. Farmer
5. Pilot

4\.
1. Fireman
2. Housewife
3. Model
4. Policewoman
5. Lawyer

5\.
1. Lawyer
2. Movie Star
3. Politician
4. Scientist
5. Storekeeper

6\.
1. Mechanic
2. Musician
3. Policeman
4. Prizefighter
5. Teacher

7\.
1. Carpenter
2. Lawyer
3. Plumber
4. Salesman
5. Secretary

Please fill out the information asked for at the top of the IBM answer sheet: Form I.T.S. 1000 A 309.

Name - Date

Date of birth - Age - Sex

School - City - Grade - Instructor

In the space marked "Name of Test" write Self-Interest Inventory, Part I.

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8. Choose from the following the ones you would most like to go with to a movie. Make one choice.
    1. Family
    2. Friends of your same sex
    3. Friends of the opposite sex
    4. Friends younger than you are

If you really dislike the thing, the person, or the task discussed below, make a heavy mark under True (No. 1 or "T" on the IBM sheet). If you are indifferent or do not dislike it, make a heavy mark under False (No. 2 or "F" on the IBM sheet).

9. Having to recite in class
10. Teachers who are not interested in their pupils
11. Being punished for things someone else did
12. Classmates who are snobbish or stuckup
13. Being laughed at by the other students
14. Routine school work
15. Teachers who criticize one's faults or mistakes
16. Having someone else get a better mark
17. Teachers who use sarcasm or ridicule

18. If you were 18 years old and could choose, which of the following would you do?
    1. Quit school and stay home
    2. Get a job and live at home
    3. Get a job and leave home
    4. Go to school or college
    5. Get a job but go to night school

19. Which of the following do you like to do best after school? Choose one.
    1. Play games (sports)
    2. Read
    3. Go shopping
    4. Talk with my friends
    5. Just bum around by myself

20. How do you feel about bossy people? Choose one.
    1. I can't stand them.
    2. They make me nervous.
    3. I don't pay any attention to them.
    4. I treat them the way they treat me.
    5. I "cut" them down to size.

21. How do you feel when you speak to someone you think you know and find this person is a stranger?
    1. I feel terribly silly for a minute or two.
    2. I keep thinking about it for a long time and wonder what the person thinks of me.
    3. I just apologize and think no more about it.
    4. I think it's a good joke on me.
    5. I think of something smart to say so they will feel like the joke is on them.

Mark True or False on answer sheet to the questions below. (Mark No. 1 if "T" or No. 2 if "F.")

22. Do you feel like getting up in the morning? (That is, are you ready and therefore enjoy getting up in the morning?)
23. Do you have things on your mind so you can't sleep well at night?
24. Do you dream about your brothers and sisters?
25. Do you get out of breath quickly when running in Physical Education?
26. Do you have pains in your eyes?
27. Do you often feel grouchy?
28. Do you worry about things you have done?
29.
30. Do you wish your parents would spend more time with you?

The next group of questions is given in pairs and will require you to think a little more carefully. Both questions of each pair must be answered, and you may not feel they should be answered in the same way. If you feel that you are exactly like the person described below, indicate YES by marking No. 1 on the answer sheet. If you are completely opposite to the person described, indicate NO by marking No. 5. If you are somewhere in between, place the mark where it will be most true. The person indicated by the letter of the alphabet is always of your same sex. Let us study the sample below.

SAMPLE: Student X studies harder than anyone else in your class.
Am I like X?
Do I wish to be like X?

If you really feel that you study harder than anyone, mark No. 1 for YES. If you hardly study at all, mark No. 5 for NO. If you feel you study an average amount or about halfway between the one who studies the most and the one who studies the least, mark No. 3. If you feel you study almost as hard as No. 1, mark No. 2. If you study a little more than number 5, mark No. 4.

You may wish you were different from the way you rated yourself. If you do, mark the choice where you wish you were.

Remember the choices are 1 = YES, 2 = ALMOST YES, 3 = AVERAGE, 4 = ALMOST NO, 5 = NO.

S. would rather read than do anything else.
31. Am I like S.?
32. Do I wish to be like S.?

G. gets good marks on all school work.
33. Am I like G.?
34. Do I wish to be like G.?

T. is a leader among the students.
35. Am I like T.?
36. Do I wish to be like T.?

D. always obeys his/her parents.
37. Am I like D.?
38. Do I wish to be like D.?

L. is the most popular student in school.
39. Am I like L.?
40. Do I wish to be like L.?

F. feels old enough to make decisions without grown-up help.

41. Am I like F.?
42. Do I wish to be like F.?

M. has more spending money than the others.

43. Am I like M.?
44. Do I wish to be like M.?

J. is the brightest student in school.

45. Am I like J.?
46. Do I wish to be like J.?

Y. would rather play games than do anything else.

47. Am I like Y.?
48. Do I wish to be like Y.?

R. wants very much to be grown-up.

49. Am I like R.?
50. Do I wish to be like R.?

B. would rather sit alone and think about things than be with people.

51. Am I like B.?
52. Do I wish to be like B.?

N. has many good friends.

53. Am I like N.?
54. Do I wish to be like N.?

Q. has more friends of the opposite sex than anyone else.

55. Am I like Q.?
56. Do I wish to be like Q.?

O. is liked by the teachers.

57. Am I like O.?
58. Do I wish to be like O.?

P. usually trusts people.

59. Am I like P.?
60. Do I wish to be like P.?

K. fights a good deal with his/her brothers and sisters.

61. Am I like K.?
62. Do I wish to be like K.?

W. is careful not to hurt people's feelings.

63. Am I like W.?
64. Do I wish to be like W.?

C. has a job outside of school.

65. Am I like C.?
66. Do I wish to be like C.?

I. is allowed to stay out late.

67. Am I like I.?
68. Do I wish to be like I.?

P. seems to have a lot of fun.
69. Am I like P.?
70. Do I wish to be like P.?

Y. is the best dressed student in school.
71. Am I like Y.?
72. Do I wish to be like Y.?

A. often tries to be like someone in a book or movie.
73. Am I like A.?
74. Do I wish to be like A.?

F. is allowed to go places without asking permission.
75. Am I like F.?
76. Do I wish to be like F.?

N. is goodnatured and is sometimes taken advantage of by other people.
77. Am I like N.?
78. Do I wish to be like N.?

H. stays around the house evenings and on weekends to help.
79. Am I like H.?
80. Do I wish to be like H.?

R. has parents who are always nice to their children's friends.
81. Am I like R.?
82. Do I wish to be like R.?

V. is allowed to go out with a crowd, without any grownups along.
83. Am I like V.?
84. Do I wish to be like V.?

Z. would rather agree than get into an argument or fight.
85. Am I like Z.?
86. Do I wish to be like Z.?

I. is thought to be different from the others.
87. Am I like I.?
88. Do I wish to be like I.?

L. has parents who do not realize he/she is growing up and still treat L. as a child.
89. Am I like L.?
90. Do I wish to be like L.?

The following questions are about the number of older and younger brothers and sisters you have. If the answer is none, leave the item blank. If the answer is more than 5, mark 5 anyway.

91. How many older brothers do you have?
92. How many older sisters do you have?
93. How many younger brothers do you have?
94. How many younger sisters do you have?

The next four questions concern things that we may be afraid of. Many of us feel we have good reason to be afraid of many things, while some of us just don't feel that way. Mark No. 1 on the answer sheet if you feel you are like the person described. Mark No. 2 or "F" if you feel you are not like the person described.

95. A is afraid of accidents. Am I like A?
96. B is afraid of earthquakes. Am I like B?
97. C is afraid of operations. Am I like C?
98. D is afraid of death. Am I like D?

Answer 99 and 100 as you did questions 31-90. Decide on the best answer from No. 1 meaning YES to No. 5 meaning NO, or somewhere between.

J. spends a lot of time at the library.
99. Am I like J.?
100. Do I wish to be like J.?

Check your answer sheet to make sure you have answered all items.